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A Lecture
ON
THE MECHANISM AND TREATMENT OF THE ATTACK IN SPASMODIC ASTHMA.

Delivered before the Members of the Medical Graduates' College and Polyclinic, London, on Oct. 26th, 1905,

BY ALEXANDER MORISON, M.D. EDIN., F.R.C.P. LOND. & EDIN.,

PHYSICIAN TO THE GREAT NORTHERN CENTRAL HOSPITAL AND TO THE CHILDREN'S HOSPITAL, PADDINGTON GREEN.

GENTLEMEN,—It is not remarkable that so distressing an affection as asthma should have attracted the notice of physicians from early times nor, in view of the intermittent nature of the attacks in many cases and their persistence in some instances throughout long lives, that some of the best authorities on the subject should themselves have been asthmatics. Thus, among our own standard writers on this subject the names of Floyer, Bree, and Hyde Salter readily occur to us, the first of whom wrote at the end of the seventeenth and commencement of the eighteenth century, Bree at the commencement of the nineteenth, and Hyde Salter, the author of a now classical essay on the subject, died comparatively young so recently as 1871. Among others of our countrymen, ancient and modern (not to mention numerous foreign authors), who have written instructively on the subject mention may be made of William Cullen, who was apparently the first to use the term "spasmodic asthma," and of Thorowgood, whose lectures before the Medical Society of London must be familiar to many. In this connexion I should also mention the able paper on the Pathology of Asthma by Dr. T. G. Brodie and Dr. W. E. Dixon in the Transactions of the Pathological Society of London for 1903, to which my attention was drawn after I had finished writing this lecture and some of whose arguments and conclusions agree with my own reached from the clinical side.

I have chosen a limited aspect of this subject for a lecture because it affords me the opportunity of discussing a manœuvre in treatment which was novel to myself when I first employed it in an urgent case and on the spur of the moment and the benefit accruing from which appears to me to throw some light on a much debated point in the underlying pulmonary mechanism of the attack or fit in spasmodic asthma. Before coming to that point, however, it will be necessary to consider briefly the physical factors in, and the clinical features of, the condition, although in doing so I shall merely fish a well-whipped stream and shall have to content myself with laying before you, at the end of the lecture, the minnow in treatment to which I have referred. We know, however, that there are large fish still in the water and can also guess where they probably lie, but they have so far escaped capture. That is, there are important problems in asthma which still await solution. I trust you will bear with me if in developing my argument I refer to some elementary facts of common knowledge.

The respiratory act consists of two phases—inspiration and expiration. The former is largely an active, the latter largely a passive event. In proportion to the greater activity of inspiration there are a larger number of muscles involved in its execution. Physiology teaches us that the muscles of ordinary inspiration are the external intercostals, the levatores costarum, the serratus posticus posterior, the inner or cartilaginous portion of the internal intercostals, and last, but not least, the diaphragm; while the lower ribs are fixed and the general effectiveness of the whole is promoted by the quadratus lumborum, an office rendered the upper ribs by the scalene muscles. In forced inspiration, the additional aid is sought of the sterno-mastoid, serratus magnus, the pectorals, and the trapezius, while the laryngeal and facial muscles also play a minor part in exaggerated breathing. Ordinary expiration is, as we know, almost entirely passive, the elasticity of the lungs, chest wall, and diaphragmatic tendinous structures sufficing to restore the conditions existing prior to inspiration. Forced expiration in addition requires the help of the interosseous portion of the intercostal muscles, the triangularis sterni, the serratus posticus, the quadratus lumborum, and the abdominal muscles. But, in addition to these muscles extrinsic to the lungs, there is also a continuous circular musculature of the bronchial tubes. This lies internal to the cartilaginous supports of the bronchi and invests the tubes down to their small ramifications and even beyond the zone of scattered cartilaginous support. Although there are in addition to the circular fibres of the bronchial muscle some longitudinal fibres, their more powerful effect in action appears to be to contract, not to dilate, the air passages, and therefore their active exaggerated action must aid expiration up to a certain point and, if persistent, likewise impede inspiration. Like all visceral and somatic muscles, without exception, the bronchial muscle is innervated, and although beyond the direct power of the will is not beyond that of emotion and can receive impressions and manifest reflex action.

These factors may be regarded as constituting the grosser executive mechanism of ordinary and of forced respiration. The nervous endowment of the lungs and of the approaches to them may be considered as the finer executive mechanism of this function. This is constituted by the pneumogastric nerves and their connexions with the sympathetic system and other nerves, the whole culminating in the respiratory centre in the medulla, which is capable of being influenced by stimuli both in the visceral and somatic periphery and by mental influences which, relatively to the respiratory centre, may be regarded as the cerebral periphery. Beyond the power of will the respiratory function like other visceral functions is not, as I have stated, beyond the power of emotion. Emotion may induce and it may also cure an attack of asthma. The provocative mechanism of respiration lies in the power of the blood to act upon the respiratory centre, and in the afferent nervous endowment of the lungs and their accessory parts, as well as in that of the general surface and even of distant organs which indirectly influence the respiratory function. When to these general conditions, which apply to all men, we add those idiosyncrasies of the individual, which lay particular persons open to the influence of special stimuli and the respiratory reflexes provoked by these, we have a general conception of the conditions and circumstances, however imperfectly we still know them, which underlie the attack in asthma.

It is scarcely necessary before this audience to describe the clinical features of so familiar an affection as an attack of spasmodic asthma, except in general terms, and as a link in the chain of argument. It has been minutely and graphically described by many writers and best, I think, by those who have themselves suffered from asthma. In confirmation of this statement I need only instance the descriptions given by Bree and Hyde Salter. While such writers largely agree in the description of their subjective distress and of the objective phenomena accompanying it, it is not remarkable that they should differ much in their interpretation of the causes of the disorder the effects of which they describe, the earlier authors having written prior to the knowledge we now possess of the reflex actions of the nervous system.

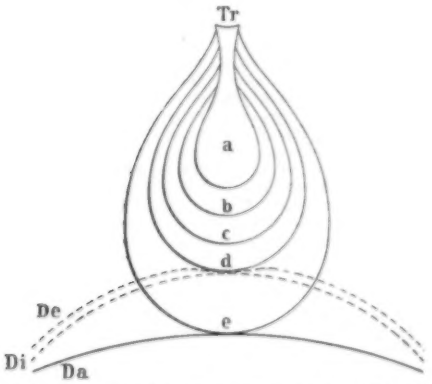
Whether, as in some cases, there is a discoverable catarrhal or irritative cause initiating the phenomena of asthma, or such cause be obscure or undiscoverable, the phenomena of asthma are those of exaggerated breathing but with this difference: that the importation of all the adjuvant mechanism of respiration fails to attain its end—fails, that is, to produce that fuller and easier breathing towards which all the powers of the patient are bent. As Salter remarks[1]: "Violent and laborious as are these respiratory efforts, they are abortive; although the muscles that should move the parietes of the chest are contracting to their utmost, no corresponding movements take place—the chest is almost motionless, its walls fixed as in a vice, as if they could not follow the traction of their muscles; and this is really the case. This immobility, in spite of the violent action of the moving agent, is one of the most singular and striking appearances of asthmatic breathing. ..... One result of these straining efforts to fill the chest is a permanent distension of it—its walls are kept fixed in a condition of extreme inspiration. So great is this enlargement of the chest during the paroxysm that any article of dress that would ordinarily fit the waist cannot be brought together by two inches. But the chest is enlarged in every way, the diaphragm therefore descends, the abdomen therefore seems

[1] On Asthma, p. 7; London, 1860.

fuller and its girth is increased. ..... This," Salter continues, "I believe is the principal cause of that abdominal distension of which asthmatics complain and which is generally assigned to flatulence. As soon as the paroxysm goes off the chest and abdomen resume their original size. ..... I do not see," he adds, "that anything is gained by this distension of the thoracic cavity; the only difference is that the volume of air locked up in the chest is rather larger but no more is changed at each respiration and *it is amount so changed, and not quantity contained in the lungs, that relieves the demand of respiration.*" This last clause I wish to emphasise (and have italicised) in view of the manœuvre to which I shall presently refer. "But air," adds Salter, "is the thing wanted and inspiration is the act that ordinarily relieves that want: this keeping the chest, therefore, at a condition of extreme inspiration must be looked upon as an instinctive but blind and abortive effort to remedy that which is irremediable."[2] Air is certainly wanted, but changed air, as Salter says, and expiration is as necessary as inspiration to achieve that object. We shall see presently that what the patient cannot do for himself we can in great measure and in many cases do for him.

In considering obstacles to the ingress and egress of the pulmonary air, it is convenient to bear in mind certain terms employed by physiologists—namely, the terms "tidal air," "complemental air," "supplemental or reserve air," and "residual air."[3] These terms respectively connote: (1) the quantity of air commonly inspired and expired with each respiratory act; (2) the whole amount capable of being inspired; (3) the whole amount capable of being expired; and (4) the air left in the lungs after fullest expiration. The level of the diaphragm naturally varies with the degree of inspiration and expiration. These conditions may be graphically represented thus:—

FIG. 1.



Tr. Trachea. *a.* Tidal air. *b.* Complemental air. *c.* Supplemental air. *d.* Residual air. *e.* Surplus residual air of the asthmatic state. *De.* The abnormally depressed diaphragm of asthma. *Di.* The diaphragm of normal inspiration. *De.* The diaphragm of normal expiration.

This diagram roughly shows us that, however brought about, the pulmonary distension of the asthmatic attack is due to a large increase in the relative amount of the residual air. This must be due to impeded escape of air from the lungs. How is this brought about? Is it that there is a constant addition to the residual air by an increase in the tidal and complemental air? Or, is there a progressive difficulty in the escape of a lessened output of the supplemental air? It cannot be the first of these, because an increase in the ebb and flow of fresh air would go far towards relieving the distress of breathing. Complemental or forced inspiration would certainly increase pressure in the residual zone but unless its egress were prevented the normal balance would soon be re-established. We may conclude, therefore, that impediment to output is the chief cause of the persistent inflation of lung characteristic of the attack in asthma.

What, then, is the mechanism of the impeded expiration? Is it an absolute or is it a relative narrowing of the air channels? These channels may be absolutely narrowed by inflammatory swelling of the lining membrane of the bronchi in acute bronchitis and may give rise to difficulty in breathing, but such a condition is usually associated with increased rapidity of respiration and the phenomena of dyspnœa in acute bronchitis are not the same as in asthma. In asthma the rate of respiration is slower than normal, and both the inspiratory and expiratory phases protracted, but especially the latter.

Comparison may be made in asthma to the inflation of a wind instrument such as the bag-pipes, or as Hyde Salter remarks (p. 69), probably reproducing some incident in his own martyrdom of asthma, "while yet asleep the characteristic wheezing commences, sometimes, without disturbing the patient himself, to such a degree as to wake those in the same or an adjoining room, as if a whole orchestra of fiddles were tuning in his chest." The wheeze in asthma is chiefly expiratory, just as the music of the bag-pipes issues when the bag is squeezed. This argues in any case excessive inflation with relative if not actual impediment to the egress of air and actual impediment to its ingress because of the already established surplus of residual air. It may be that there is also spasm of the bronchial muscle as is generally supposed but a good deal of the wheezing is laryngeal, as the laryngoscope shows the glottis to be narrowed both in inspiration and expiration, not widely dilated on inspiration as is normally the case. As Steavenson remarks,[4] "in fact, the glottis assumes the position which is natural for expiration, as if inviting that act which it is almost impossible to perform."

Bronchial spasm, as various authors have argued, while impeding egress likewise limits ingress of air and it is also possible, as has been suggested by Steavenson,[5] himself a sufferer from asthma, that the difficulty of breathing is induced by a persistent contracture of the grosser muscular mechanism of inspiration, the preponderantly active muscles of inspiration overpowering the weaker expiratory act. In such case the difficulty of breathing and the phenomena of asthma might arise without an actual spasm of the bronchial muscles, egress of air being rendered *relatively* difficult. In view, however, of the well-established contractility of the circular muscle of the bronchial tubes and the prolonged sonorous rhonchi characteristic of the expiration of asthmatics, it is very probable that in most cases there is, in addition to this fixed inspiratory attitude, also some diminution in the calibre of the bronchi by spasticity of the bronchial muscles. These fibres, of which I throw a specimen on the screen, may be seen in a contracted condition after death corrugating the lining membrane of the bronchial tube, just as the contracted artery puckers the lining membrane of the empty vessel. A bronchial muscular spasm is then quite as much an anatomical possibility as contraction of the arteries. Normally, however, the bronchial muscle must dilate on inspiration like the vocal cords and contract on expiration and on sudden expiratory acts such as coughing and sneezing.

In a condition of persistent inspiration and pulmonary inflation, therefore, it is quite probable that the obstacle to the egress of air may be largely, if not wholly, *relative* as suggested, unless tumefaction of the mucous lining of the tubes causes in additions actual narrowing.[6] Such a condition of pulmonary inflation, however brought about, if at all protracted necessarily implies dextro-cardial repletion and the small pulse of a depleted left heart which is so characteristic of spasmodic asthma, for normal expiration is necessary to repletion of the systemic vessels. A true spasmodic asthma may also be superadded to a primary bronchitis. In such case there is also inflammatory narrowing of the bronchi from tumefaction.

Such, then, are the probable physical conditions underlying the attack in spasmodic asthma. What can we do to relieve this state? The object of treatment is to remove the impediment to a normal rhythm in inspiration and expiration—that is, to establish a normal ratio between the tidal, complemental, supplemental, and residual air in the lungs. Whether, therefore, the chief cause of the surplus residual

[2] Op. cit., p. 77.
[3] Kirkes' Physiology, edited by Halliburton, p. 521.

[4] Spasmodic Asthma, p. 27.
[5] Loc. cit.
[6] This was written before I had seen Dr. Brodie's and Dr. Dixon's article. In view of their demonstration of the ease with which the bronchial muscle may be made to contract and dilate under stimulation of the vagus and by the use of certain medicinal agents a greater rôle must be assigned to the action of this muscle in the impediment to inspiration and expiration than I felt disposed to assign it in the first instance.

accumulation be skeletal or visceral—whether due, that is, chiefly to inspiratory fixation or to bronchial spasm—the inspiratory attitude must be reduced and the range of the expiratory act increased.

There are various drugs which may reduce spasm both visceral and skeletal, but when they do the one efficiently in spasmodic asthma they also do the other. Therefore, from this anti-spasmodic action we cannot be quite certain whether the chief effect is upon visceral or upon somatic contracture or spasm. The patient who is relieved by the inhalation of chloroform lies more or less limp as to his skeletal muscles, while he breathes easily through his bronchial tubes. He who is nauseated by ipecacuanha, or tartar emetic, or tobacco is debilitated generally, while at the same time his respiration is easier. This is true in a measure also of other drugs, such as stramonium, atropin, and lobelia, which are regarded as specific anti-spasmodics. The anti-spasmodic action of opium is less certain, and its effect on muscular action also, except after large doses, is not so marked. There are certainly some other measures employed in which this skeletal depression is not so evident. Thus, strong coffee relieves the attack in some cases. Salter ingeniously tries to explain this action of coffee by suggesting that as asthma often comes on in sleep—a condition in which reflex excitability is increased, and less easily while awake—and, moreover, as coffee keeps one awake, this agent probably acts by diminishing that tendency to reflex excitability which is greatest during sleep. Whether this be so or not it is a good example of the play of Salter's minutely critical and ingenious mind.[7] The explanation is purely theoretical but I presume Salter may be regarded as correct in so far as the central control of the periphery is normally more perfect in the waking state.[8]

It is well known that the effect of drugs in asthma is almost as variable as its exciting causes are various. There is a therapeutical as well as an etiological idosyncrasy. It is, however, a well-established fact that, however distressing to the patient the action of depressant remedies may be, it is just these which most certainly relieve the spasmodic asthma in most cases and allow of sufficient expiration to reduce the rigid inspiratory fixation characteristic, as we have seen it to be, of the asthmatic state. But there are other means than the use of drugs for producing a normal ratio between the respiratory acts.

To return for a moment to Salter's graphic account of the asthmatic attack. After minutely describing the alternate sleep and semi-wakefulness of the sufferer under the gradually tightening grip of this demon of dyspnœa, he writes[9]: "By and by the struggle (to sleep) ceases, sleep is no longer possible, the increasing dyspnœa does not allow the patient to forget himself for a moment, he becomes wide awake, sits up in bed to lie back no more, throws himself forward, plants his elbows on his knees, and with fixed head and elevated shoulders labours for his breath like a dying man." Now, why is this attitude instinctively assumed? What is its effect? The inspiratory muscles certainly act more powerfully in this position and the blood flowing towards the right heart enters it less copiously and thus tends to limit stasis in the pulmonary circuit, for the upright cavo-hepatic blood column is less easily emptied into the right heart than is the horizontal. While in this position the cephalic veins drain better into the chest, which is an advantage, the venous system generally is retarded, which is also an advantage, and allows the left heart more time to deal with the intra-thoracic blood. I have illustrated this principle in orthopnœa on a former occasion by the diagram I now throw on the screen, a diagram drawn from a mechanical apparatus which demonstrates the fact. It was published in THE LANCET of Jan. 30th, 1904.

But still more is effected by this attitude to the advantage of the patient. In recumbency there is an upward and outward movement of the ribs round the costo-vertebral joints which enlarges the capacity of the thorax and exaggerates pulmonary inflation, while at the same time it renders costal expiration more difficult. The recumbent position one would *a priori* suppose to be more favourable to diaphragmatic recoil but the inspiratory fixation of the chest plus recumbency appears to counteract this possible advantage of that attitude. A posture such as that described by Salter varied from time to time by the instincts of the patient tends, on the other hand, to promote a perpendicular fall of the ribs, while the drawn-up legs crowd the abdominal viscera against the diaphragm. That is, whatever inspiratory advantage the attitude may possess, it has still greater expiratory advantages and it is expiration which deals with the surplus residual air.

But the patient, at times abandoning the hope of aid from drugs and from the advice of physicians, sometimes endeavours to deal with his asthmatic state more fundamentally in the intervals between attacks by taking such an amount of vigorous exercise on foot or on horse-back as tends to render more supple his inspiratory and expiratory powers, and cases are recorded in which such a method has secured comparative immunity from attacks. Salter appears to think that the improved metabolism which is induced by exercise is chiefly responsible for this result, but to my mind the mechanical advantage of increased respiratory suppleness and improved tone generally is not the least active factor in the beneficial result. With these preliminary remarks I come to the exhibition of my "minnow."

Two years ago I had occasion to treat two adolescent patients in the same family, who had manifested an asthmatic tendency which was easily provoked by mild catarrhal fever. Their attacks of typical spasmodic asthma at times reached a high degree of severity and persisted for some days. It was deemed advisable to remove them from London to a watering-place in the south of England, and this was done with temporary benefit. There was, however, while there a recurrence of the affection in both cases, and simultaneously, in a degree never before witnessed and for a longer period. The full clinical picture already related was exhibited, inspiratory inflation gradually overpowering expiratory effort and leaving the patients fixed and breathless. I was asked to meet the physician then in charge of the cases, which had given him much anxiety and demanded the constant attention of a very busy man. Drugs had proved useless, even repeated hypodermic injections of morphine.

As I sat by the bedside and observed the bulged chest and dilating nostrils of the patients, the thought occurred to me to do for the patients what they evidently could not do for themselves—namely, aid their expiratory efforts in their struggle with the overmastering inspiration. With one hand on the back and the other on the front of the chest, I emptied it with a prolonged wheeze at the end of each inspiration. As the chest rose with inspiration I raised my right hand, merely leaving the tips of my fingers on it, and when expiration should have occurred brought down the whole hand on the chest and squeezed air out, as one might water from a sponge. I throw on the screen pictures of this procedure.[10] (Fig. 2 and Fig. 3.) After several manœuvres of this kind the patients expressed relief from the sense of strain and stifling and the nurses were directed to use like compression whenever dyspnœa became great. The relief gained by their efforts was, however, stated to be not so great as when I personally carried out the manœuvre. This was natural, for the procedure was new to the nurses and effective action requires a clear conception of the principle involved and some knowledge of the organs manipulated. Although the distress of the attack was temporarily ameliorated in these cases by this means the asthmatic condition persisted and was manifestly largely neurotic, as such attacks frequently are. A few days later the patients were removed to London and have been little affected since.

During the last two years I have had frequent opportunity of testing the utility of artificial expiration in the treatment of the attack in spasmodic asthma and have never failed to relieve more or less the sense of thoracic oppression judging from the statements of the sufferers and their visible easement of breathing. It is noteworthy that the *amount of wheeze* denoting this expiration by compression is greatest at the commencement of the manœuvre and diminishes as it is continued in recent cases. Young subjects having greater elasticity of rib are those who most rapidly gain relief, but even in older people with stiffened chests I have found compression by one hand over the

[7] Op. cit.

[8] This fact is important in gauging the value that should be attached to the results of experiments on decerebrated animals.

[9] Op. cit., p. 69.

[10] The manœuvre may, however, be varied. In the case of those who can lie more recumbent, the bed may take the place of the dorsal hand and both hands be used anteriorly to compress the chest, the simple principle being to empty the lungs of surplus residual air as one might any other form of bellows and to do so by gradual and smoothly increasing pressure. Those old enough or intelligent enough to expire as much as possible during the thoracic compression may still further aid in reducing the residual air by their own effort.

thorax and the other over the epigastrium, lower ribs, or preferably over the right hypochondrio-epigastric region, procure relief from the thoracic anxiety attending preponderantly inspiratory fixation of the chest.

I now show you a patient who consulted me the day before yesterday at the Great Northern Central Hospital. She is 14 years of age, has been asthmatic since she was three years old, and shows the well-marked secondary changes in the shape of the chest which such cases exhibit. The whole chest is rounded, the upper portion of the anterior thorax raised as in inspiration, and the lower part contracted by the action of the depressed diaphragm. As her mother has told you, when she came into my room "she could hardly breathe"—she had an attack of spasmodic asthma—and complained of pain across the chest. After I had emptied her chest of surplus air in the manner I now show you, as she has told you, she lost all thoracic distress. She has taken no medicine since I saw her and her mother states that she has been able to relieve her by thoracic compression when she has had any threat of an attack. I do not think we can attribute these results to "suggestion." The anatomical conditions requiring the manœuvre are too well marked and I did not in any way suggest when I began to operate that the result would be to relieve the patient.

All I claim for this simple procedure is amelioration of distress during the attack in spasmodic asthma without the use of the more powerful drugs which depress and nauseate. Properly instructed a nurse or relative, as in the case I have shown you, can carry out the manœuvre for a sufficient length of time to afford much relief to the patient.

FIG. 2.

Compression during expiration.

The title of this lecture indicates its scope. I cannot now describe the more complete treatment of asthma in the interval between the attacks by endeavouring to remove, as far as lies in our power, such general and particular or idiosyncratic causes as play the part of exciting causes in individual cases. Nor can I at present enter into the further uses of expiratory compression as an adjuvant means of treatment in some other pulmonary states. But it will be evident that manual compression of the chest may be of service in all conditions in which, from disease or disturbance, more or less emphysema, that is, more or less diminished expiration, is present. Even in more chronic conditions increased suppleness of costo-vertebral movement may be secured by persistent manipulation and breathing thus rendered more easy. This increase of costal movement I have even witnessed in an elderly patient with comparatively fixed ribs whose abdomen I had occasion to maintain strapped after paracentesis abdominis. I may mention in addition that a patient has volunteered the remark that it seemed to "bring the phlegm into the

FIG. 3.

Hand raised during inspiration.

throat without coughing," and indeed, expiratory compression is a mode, though not an explosive or sudden mode, of coughing. In spasmodic asthma the indication for the manœuvre is so manifest that I am surprised it did not occur to me to use artificial expiration sooner, and as all to whom I have mentioned the matter appeared to be ignorant of its utility and employment, and, moreover, as I have not met with it in the literature of the subject, I have taken this opportunity of bringing it before the notice of members of the Polyclinic.

THE OXFORD GRADUATES' MEDICAL CLUB.—The winter dinner of this club was held on Nov. 16th at the Trocadéro Restaurant, London, W., the Regius Professor of Medicine, Dr. William Osler, being in the chair. There was a large gathering of members and guests, in all about 160, including Dr. W. W. Merry, the Vice-Chancellor, Sir William S. Church, Sir William H. Broadbent, Professor T. Clifford Allbutt, and many others. In accordance with the laudable custom of the club the toast list contained only two toasts—namely, "The King" and "The Club"—both of which were proposed by Professor Osler who coupled with the last the name of the Vice-Chancellor. Dr. Merry replied in one of his admirable speeches. Sir William Church, later in the evening, referred to the fund being raised for the endowment of the chair of pathology. In all the fund at present amounted to £2168, of which £1000 were a special donation by Mr. Whitley. Altogether a most pleasant evening was spent and great praise is due to the secretaries, Dr. Herbert S. French and Dr. J. S. Fairbairn, for their labours in connexion with the festivity.

ABSTRACT OF

The Fitz-Patrick Lectures

FOR 1905.[1]

Delivered before the Royal College of Physicians of London on Nov. 14th and 16th, 1905,

BY NORMAN MOORE, M.D. CANTAB.,
FELLOW OF THE COLLEGE AND PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

LECTURE II.[2]

Delivered on Nov. 16th.

DR. EDWARD BROWNE (1644–1708) AND THE EDUCATION OF PHYSICIANS IN LONDON IN THE SEVENTEENTH CENTURY.

MR. PRESIDENT AND GENTLEMEN,—In my former lecture I endeavoured to show what were the attainments and what the studies of a mediæval physician in London. John Mirfeld knew something of the seven liberal arts of grammar, of rhetoric, of logic, of arithmetic, of music, of geometry, and of astronomy. He had been influenced by the society, the traditions, and the architecture of a great university; had been trained in medicine by a master who was a physician; had known the members of the staff of a hospital and seen cases in it; had read materia medica, medical botany, and pharmacology in Nicholaus and perhaps in Marcellus, surgery in Rogerus and Lanfranc, medicine in some books of Galen, in Rhazes, in Avicenna, in Platearius of Salernum, and in the more modern writers Bernard de Gordon, John of Gaddesden, and Gilbertus Anglicus. He had read Ysaac on diet and knew by heart the precepts on regimen of the school of Salernum. He was familiar with the names and with parts of books attributed to Hippocrates and to Aristotle. He knew something of Horace, of Virgil, and of Ovid, and had read the De Consolatione Philosophiæ of Boethius and some of the other works of that last of the Latin classical writers. His chief source of general knowledge was St. Isidore whose Liber Etymologiarum is a vast collection on everything known in the educated world of the sixth century. He was thoroughly versed in the Old and the New Testament. He had read much in the writings of St. Augustine and St. Jerome and something of St. Bernard, St. Anselm, and of St. Thomas Aquinas. He wrote easily the Latin of his time, the living language of the Church and the Law. He had read no Greek literature and probably did not know the Greek alphabet, yet he knew something of Aristotle and had heard of Alexander. In medicine he was capable of recognising the general condition of fever and of distinguishing clearly a few species of disease in which fever occurs, the plague, for example, and tertian ague. He could distinguish to some extent the manifestations of diseases which we call pleurisy and bronchitis. He knew that dysenteric symptoms were not all due to the same cause. He had names for several distinct skin diseases. He had some knowledge of enlargement of the lymphatics. He was as well acquainted with epilepsy as most physicians up to the days of Trousseau. He had observed hemiplegia clinically. He could recognise gout. He knew something of dislocations and fractures. He understood the value of exercise and of rational diet for the preservation of health and the ill effects of intemperance. He was acquainted with some of the effects of opium, of turpentine, and of sulphur, and of some other drugs. He understood the necessity of attention to the details of nursing and was aware of the importance of remembering the effect of the mind on the body. I need not point out the gaps in his knowledge of clinical medicine or of therapeutics, nor the defects in his whole system due to the small accumulated knowledge of his age in anatomy and physiology. Morbid anatomy was altogether unknown to him. Such were the attainments of John Mirfeld in the last quarter of the fourteenth century. A manuscript on pharmacology,[3] which was in existence in his time and which is now in the British Museum, has at the beginning a fine illuminated initial in which Serapion in a doctor's gown is shown lecturing on materia medica with a plant in his hand. The picture is instructive for it shows that they are wrong who suppose that scientific methods were unknown in the Middle Ages. At the time of this manuscript a lecturer illustrating his teaching by specimens was clearly a familiar sight to students of medicine. While examining the manuscript I observed a Latin inscription in a much later hand which stated that the book belonged to Nicholas de Cusa who had bought it and many other books on medicine and on the arts in 1449.

Nicholas de Cusa, to whom in the generation following Mirfeld's this copy of Serapion had belonged, was a man of varied learning and of a scientific habit of mind. He was a theological writer, a mathematician, and an observer of natural phenomena. He made an original examination of the Koran and critically discussed its contents and in medicine he introduced an improvement which in an altered form has continued in use to this day. This improvement was the counting of the pulse which up to his time had been felt and discussed in many ways but never counted. The first method of a new invention is often unnecessarily cumbrous but this does not detract from the merit of the man who first discerns its principle. Nicholas of Cusa proposed to compare the rate of pulses by weighing the quantity of water run out of a water clock while the pulse beat one hundred times. Thus, he said, you may easily prove the degree in which the pulse of a young man is more rapid than that of an old man. "The weight, therefore, of water that flows out in relation to the differences of pulses in the youth, in the aged man, in the healthy and the sick ought necessarily to lead to a truer knowledge of the disease, one weight being proper to one infirmity and a different weight to another."

The manufacture of watches with second-hands has since given us a simpler method of counting, but the merit of introducing this useful kind of observation into clinical medicine belongs to Nicholas of Cusa. He became a cardinal and is buried in the church from which he took his title, St. Peter ad Vincula. Devotion attracts many people to this church and a love of art, since it contains a great work of Michael Angelo, many others, and science adds a third interest in the monument of this improver of clinical medicine. His tomb has no ornament but its inscription, yet it is not improper to consider that he has a more lasting memorial in his commemoration over the whole globe wherever medicine is practised by the simple clinical method of observation which he was the first to contemplate.

During the lifetime of Nicholas of Cusa Constantinople was taken by the Turks, and Greek scholars, bringing with them Greek manuscripts, came into Italy. Some knowledge of Greek is discoverable in Western Europe throughout the Middle Ages and two Greek words at least were known by sound to every Christian. The Greek quotations in the De Consolatione Philosophiæ of Boethius, for many centuries one of the most widely read of books, must have made every reader familiar with the Greek letters, and letters or passages of Greek are to be found written here and there in manuscripts, as in the Schaffhausen "Life of Columba." Johannes Scotus Erigena, it is certain, knew Greek well enough to translate the Pseudo Dionysius, and both Roger Bacon and Robert Grosseteste had considerable attainments in it. But it was a rare accomplishment and there were very few Greek books in the libraries. The study of this great literature by many men altered the aspect of the world of letters. The invention of printing gave force to the new learning and both the aspect of libraries and the studies of students were altered.

Our founder, Thomas Linacre, was born about the time of the death of Nicholas of Cusa, A.D. 1464. A century after the "Breviarium Bartholomei" was written Linacre was pursuing the study of Greek under Demetrius Chalcondylas in Italy. Before 1500 he had taken his M.D. degree at Padua and had returned to England. In the Renaissance medicine was as closely associated with literature and general learning as it has been in the Middle Ages. The difference was in the kind of literature and consequently in its effect. Linacre and his contemporaries had learned Greek and the study of the books of ancient Greece, whether Hippocratic or philosophical, opened their minds to the true source of natural knowledge—Nature herself and not books. Our College was founded in 1518 and established in our profession a permanent association with the world of learning.

[1] This abstract contains the substance of the lectures which by the terms of foundation must be published in full as a separate book.
[2] Lecture I. was published in THE LANCET of Nov. 18th, 1905, p. 1447.
[3] Harley, 3745; in British Museum.

The mediæval physician attained nearly all his knowledge from books. He had read books of many kinds but more on medicine than on other subjects. He tended to add little from observation. The physician of the Renaissance had read medicine too. Both reverenced the name of Galen and of Hippocrates, but the later physician had seen Galen and Hippocrates so near that he adopted the method by which they had attained knowledge, and did not only consider their conclusions. The trouble the later physician had to take to attain a knowledge of Greek, as on the one side it brought him to the true sources of natural knowledge, so on the other, bound him to the other branches of human thought. The knowledge required in this College was not to be attained but by living laborious days, yet many men attained it, and thus a physician in England was rightly thought a member of the learned world.

Leland and Caius, his contemporaries, have both borne testimony to the learning of our first elected Fellow, Dr. Bartlott. Since his attainments were admired by Caius it is certain that he knew Greek and was well read in Galen and we have the direct testimony of Leland that, unlike most of the physicians of the Renaissance, he knew also the mediæval writers. It was appropriate that a man not negligent of the old medicine and well versed in the new should be the first doctor to be elected into our College and that the first occasion on which our statute book, bound in silver, should have been carried before the President in state should have been in the funeral procession which bore Dr. Bartlott to his grave in the church which had once been the daily resort of John Mirfeld and in which probably his bones then rested. A fine medal struck in honour of Dr. John Freind has on its reverse figures of an ancient and a modern physician joining hands, with the words:—

"Medicina vetus et nova:
Unam facimus utramque."

The same design would have been appropriate to the commemoration of Richard Bartlott.

Linacre, our first President, and Dr. John Clement, president in 1544, were physicians of the Renaissance. Linacre was a priest and Clement a layman, but both were Greek scholars of extensive reading and the practice of both was guided by what they had learned from many treatises of Galen and from parts of Hippocrates. Most of Linacre's translations were of books of Galen but he also translated the Σφαῖρα of Proclus, a Byzantine Greek of the fifth century of our era who founded a system of philosophy drawn from Plato, Pythagoras, and Aristotle. Clement's translations were of theological writers. Linacre wrote on Latin grammar and taught it to the Princess Mary. Clement was professor of Greek at Oxford and in both classical learning was indissolubly bound up with their profession. Their Greek reading gave a precision to their medical thoughts and practice. Perhaps the constant desire to bear in mind Hippocrates and Galen in diagnosis, prognosis, and treatment may have to some degree caused their view of medicine to be narrow, yet the constant contact of their minds with the truly natural method of the Greeks must have led them sometimes to opinions wholly based upon their own observations. The contact of these physicians with the learned world was close. Erasmus, More, and Colet were their friends.

Edward Wotton, who was President in 1541, and John Caius, President in 1555, were no less Grecians than Linacre and Clement, but they were the first of our College who added zoology to their studies. Wotton was of Magdalen College and took his first degree at Oxford in 1514. The College of Corpus Christi was founded two years later and Wotton in 1521 was appointed lecturer in Greek there. Bishop Richard Foxe, the founder, wished to encourage the new learning in his college and he gave Wotton the income of a Fellow with leave to travel in Italy "to improve his learning and chiefly to study Greek." Wotton graduated M.D. at Padua and after his return to Oxford, where he was incorporated M.D. on May 16th, 1526, lectured again on Greek at Corpus, but two years later came to London. In 1552 he published in Paris a folio, "De Differentiis Animalium," the first printed book by an Englishman on zoology. He had read all the passages about natural history in the Greek and Latin classics because he was interested in the subject and so gradually came to put together the book. Sir John Mason, his particular friend and patron, who was English Ambassador in France in 1550 and 1551, took the manuscript with him to Paris and seems to have arranged for the printing and publication of the book there. It was brought out with paper and type of the finest kind and dedicated to King Edward VI.

The pages of Wotton contain much from Pliny and something from Aristotle with many learned notes, some Greek in every chapter and quotations in the text from Plautus and Virgil, Ovid, Martial, and Oppian. He had read Cicero and Columella, Theophrastus, Hermolaus, Eunius, Ælian, Ausonius, Suetonius, Heliodorus, Nicander, Dioscorides, Paulus Ægineta, and Albertus Magnus, yet very little in the book of nature. His chapter on thrushes is less abstruse than some others and shows that his mind looked rather towards bookshelves than hedgerows. "Of the kinds of thrushes and blackbirds and of other birds which are more or less like them. In the country and among hedges and farms the thrushes and blackbirds have their haunts. There are three kinds of thrushes. One is called viscivorus (misselthrush) because it must have mistletoe and resin to feed upon, and it is of the size of a pica. Another kind is of the size of a blackbird. A third, which some call ἴλιάς and ἰλλάς and others τυλάς: in Latin iliacus is of smaller size and less marked with spots. Thrushes make their nests from mud, as swallows do, alone in high trees. They make a covering of hair and wool and line the inside of the nest with the same. The thrush changes its colour: for in the summer the plumage about the neck is spotted, while in winter it is of a single hue: their note is the same all the year round. It migrates in winter in search of winter food, so that in Germany thrushes are most numerous in winter. Beech nuts are liked by thrushes. The flesh of thrushes is harder than that of partridges and that kind of birds. The juice, nevertheless, if rightly cooked, is highly nutritious. As Martial says:

'Inter aves turdus, si quis me judice certet,
Inter quadrupedes gloria prima lepus.'

The thrush roasted with berries of myrtle is good for dysentery."

John Caius translated parts of Hippocrates and of Galen, and in him the study of these Greek physicians led to his own publication of observations and his two books "De Ephemera Britannica," one in Latin and one in the vernacular, are the firstfruits of clinical observation in England. His contributions to natural history were both addressed to the naturalist, Conrad Gesner, and were a treatise on British dogs and one on rare animals and plants. His natural history has a more outdoor complexion than that of Wotton, with whose account of thrushes and blackbirds Caius's chapter De Morinello may be compared. "Morinellus, a bird common on our sea shores, is foolish but good to eat and is among us thought one of the greatest of delicacies and fetches a high price. The bird is a mocker. So that as the owl and the bustard by imitation of jumping this by night in candle light is captured by the motion of the catcher. For if he stretches out his arm the bird extends its wing, if he his leg it does the same. Thus the bird intent on the man's movement is taken by the fowler and is inclosed in the net. It is a small bird of the size of a starling with three front toes and no hind toe, with a black top of its head, white round the eye, and is almost of the colour of a quail if you add a little grey, especially round the neck. I call it Morinellus for two reasons: because the bird is commonest on the seashore and because it is a stupid bird, which stupidity in Greek is called μωρότης. For the same reason we call it Doterel, as if, so to speak, crazy with folly." The description of the meleagris or guinea fowl, the head of which, he says, is so arranged "ita ut insideat capiti eo modo quo ducalis pileus illustrissimo duci Veneto si quod jam adversum est aversum fieret," seems to bring Caius before us in Venice looking at the Doge in ducal cap walking in solemn procession round the piazza of St. Mark or passing by in the Bucentaur in gorgeous state to wed the Republic to the sea; while that of the Doterel shows him in the open country of his native Norfolk.

I have mentioned together Wotton and Caius as the men who first in our College brought zoology into the list of subjects on which a physician should be informed. They had an association outside this College, for Sir John Mason was the patron of both. This statesman, the son of a cowherd at Abingdon, had been an undergraduate at Oxford while Wotton was in residence and became a Fellow of All Souls', and in 1552 Chancellor of the University of Oxford. He was early employed in diplomatic service abroad and so continued almost to the end of his life. He was English Ambassador at Brussels in October, 1555, and witnessed the elaborate ceremony in which Charles V.—Cæsar, as the historians of the time call him.—abdicated his imperial crown.

Charles, moved by the stage effect which he had himself arranged, "broke into weeping," says Mason, "whereunto, besides the dolefulness of the matter, I think he was moche provoked by seeing the whole company do the lyke before, there being in myne opinion not one man in the whole assemblie, stranger or another, that during the time of a good piece of his oration poured not out as abundantly teares, some more, some lesse."

The study of modern languages and their literature began in England soon after that of Greek and with this part of learning our College was connected in several ways. Spanish was the first continental language in which a Fellow of this College became distinguished. Thomas Doyley of Magdalen College was at Oxford with Sir Philip Sidney and Lyly the euphuist, and Hakluyt, who edited the great series of voyages, all of whom were affected by the taste for the Spanish language and literature which began in England in the reign of Philip and Mary and increased in the time of Queen Elizabeth. He took his B.A. degree in 1564 and his M.A. degree in 1569 and after some medical reading at Oxford went abroad in 1571 to pursue medical studies. He graduated M.D. at Basle in 1581. Throughout these years he continued to increase his knowledge of Spanish and persevered in the study after his return to London in 1585. He was elected a Fellow of this College in 1588 and physician to St. Bartholomew's Hospital in 1590. He died in 1603 and was buried in the church within the hospital.

The first Spanish dictionary was published in London in 1591 under the title of "Bibliotheca Hispanica; by Richard Percyvall: Gent." The dedication to "Robert Earl of Essex and Ewe, Viscount Hereford and Bourghchier, Lord Ferrers of Chartley, Baron Louvaine, Master of the Queen's Majestie's horse and Knight of the Garter," is followed by an address to the reader. In this, after describing the aims and contents of the book and the help he had received from Don Pedro de Valdes and Don Vasco de Sylva, Percyvall says: "In very good time I chaunced to be acquainted with the learned gentleman Master Thomas Doyley, doctor in Physicke who had begunne a Dictionary in Spanish, English and Latine, and seeing me to be more foreward to the presse than himself: very friendly gave his consent to the publishing of mine, wishing me to adde the Latin to it as hee had begunne in his, which I performed, being not a little farthered therein by his advice and conference." The generosity of Doyley seems to have been as great as his learning, and having thus contributed to the dictionary he wrote a short Latin poem in praise of it:—

"Quas novus orbis opes quas profert India fructus,
Quas mare, quas tellus gemmas aurique fodinas
Has habet Hispanus, Jasonis vellere dives:
Cum populo aurato collubet ergo loqui.
Expetit Hispanus Belgas evincere, regem
Gallorum per vim regno depellere, regnum
Diripere Anglorum, quid non? Cupit esse monarcha
Cum rege hoc tanto, collubet ergo loqui.
Cum quibus aut bellum cupimus, commercia pacem,
Horum sermo placet: facilemque brevemque loquend
Dat liber iste modum, dat Percyvallus author
Cum populo Hispano quam cito posse loqui."

An English commendatory verse by James Lea prefixed shows that though Spanish was the first modern language in which our College produced a master French and Italian had before received more attention in the world of London:—

"Though Spanish speech lay long aside within our British Ile,
Our courtiers liking nought save French or Tuscan's stately stile,
Yet now at length (I know not how) steps Castile's language in
And craves for credit with the first, though latest she begin."

The reading of Greek books as the only true method of entrance to medicine in particular and to learning in general lasted about a hundred years. By that time the way to acquire knowledge, which Hippocrates and Galen made clear by example, had come to be thoroughly understood, and men eager to acquire more knowledge of things from nature no longer needed to be assured that thus only truth could be attained. The last words of the preface of the De Magnete of William Gilbert published in 1600, the year in which he was elected President of this College, show that this stage had been reached. "To those early forefathers of philosophy, Aristotle, Theophrastus, Ptolemy, Hippocrates, and Galen, let due honour be ever paid; for by them wisdom hath been diffused to posterity; but our age hath uncovered and brought to light very many facts which they, were they now living, would gladly have accepted." The addition of such facts by Harvey, by Glisson, and others in this College and by many other observers all over Europe rapidly brought medicine into that state of constant growth and improvement in which it has ever since continued. But the change was gradual and not sudden. Theodore Goulston, a Censor in 1626 and three earlier years, made translations of the Opuscula of Galen published in 1640, eight years after his death, which were carefully read and annotated by Harvey. Goulston was, perhaps, the last physician of the Renaissance kind who studied Greek and through it attained his medical knowledge.

If Gilbert may be regarded as the first physicist of the College the first Fellow who knew much of chemistry was undoubtedly Theodore Turquet de Mayerne who came to settle in England from Paris in 1611 and was elected a Fellow of our College in 1616. He made many chemical experiments and applied his chemistry to pharmacy and to therapeutics, making the lotio nigra, which has been valued ever since, and bringing calomel into use. He also carried out a long series of experiments on pigments. His varied attainments, his large practice and consequent great experience, as well as his upright character, caused his influence to be great and he showed to the College the usefulness of knowing something of chemistry, while his habit of taking elaborate notes of cases gave an example which had a most valuable effect on clinical medicine. Sir Theodore Turquet de Mayerne died in 1655.

Linacre, Clement, Wotton, Caius, Doyley, Gilbert, Harvey, Mayerne, and Glisson represent the kind of knowledge with which this College began and that to which it gradually attained in the first century and a half of its existence. Latin was the language of composition and communication. Botany of some kind was an inheritance of physicians from the Middle Ages, improved first by the study of the text of Dioscorides and then by the observations in the field of Lobel, and Gerard, and Parkinson, and many more in other countries. Greek was the most important professional training, diminishing in importance as the effects of reading Greek books became more distinct. The lesson was at last learned and the teacher was no more needed. The value of a knowledge of modern languages had come to be understood. Anatomy and physiology were sufficiently known by dissection and observation to make Harvey's discovery possible. The usefulness of physics and of chemistry had been demonstrated by Gilbert and by Mayerne. Morbid anatomy was considerably advanced and its importance in its relation to clinical medicine made plain in the work of Harvey, and Mayerne, and Glisson. The precise study of disease during life was established by the copious note taking of Mayerne and the exact observations of Glisson.

The publication by the College of the Pharmacopœia in 1618, for the first edition of which Mayerne wrote the dedication to the King, may be said to have established the study of pharmacology on a sound basis by providing in successive editions of the Pharmacopœia a tribunal before which, as one may say, drugs might be arraigned from time to time to answer for their usefulness and be retained in the public service or dismissed from it according to the decision. The College of Physicians was the sole guardian of medical learning in England at this period, for the universities were inclined to treat the subject as a part of general book learning, only exercising a very slight and varying control over men who wished to take a Bachelor of Medicine or Doctor of Medicine degree. Supplicats were occasionally refused and it seems reasonable to suppose that this was sometimes on account of insufficient knowledge in the candidate or unsatisfactory evidence of study. The College, from its close connexion with Oxford and Cambridge, to which universities all its Fellows by residence or incorporation belonged, and by the influence of its recognised supremacy in medical knowledge, was sometimes able to prevent persons of insufficient attainments from admission to degrees. Thus Simon Ludford, who had failed in his examination before the College in 1553 and tried to obtain a licence to practise in each university though of most defective attainments, was for a time prevented—at Oxford by an appeal to the visitors and at Cambridge by the influence of Caius—from receiving licence or degree. The refusal had the effect of leading him to improve himself and he obtained an M.D. degree at Oxford about four years later, in 1560, and in 1583 he was elected a Fellow of this College. His copy of Avicenna is in our library and in another book of his, "De dissectione partium

corporis humani libri tres à Carolo Stephano," Paris, 1545, he has written a copy of Latin verses headed by the words:—

"Simonis Ludfordi est hoc volumen
Corporis dissecti, anatomicarum
Partium humani, docet hoc volumen:
Et modum, et formam, utilitatem et usum,
Illiteratos.

Absolutis comprobat argumentis
Actiones, officia, atque nexus,
Esse quadam symmetria coacta
Particularum.

Cuilibet membro propriam figuram:
Et situm, cursumque notamque posuit,
Nil inexpertum memorat nec ullum
Sectio fallet.

Erutum a scitis Veterum quod pansit:
Posteris charum, Stephanus reliquens,
Munus inculpabile, quo perhenne
Nomen adeptus.

Hilasce lectis, cætera quæ metenda
Sunt facultatis, potes experiri:
Evadis tandem ut medicus peritus.
Perge Galenum.

Floccipendas pecuniam, valebit
Ars: thesaurus deficiet, volumen
Sollidis hoc venditum habebis octo.
Totque ego solvi."

Whether these verses are sufficiently bad to have required his continued exclusion from the College I must leave to the distinguished Latin poets whom we have among our Fellows at the present day—to Dr. Robert Bridges and Dr. J. A. Ormerod. I suppose that Ludford did not obtain the purchaser who would pay the eight shillings he asked, as the book is in our library, to which, with the Avicenna, he probably gave it when, his early want of education having been repaired, he was honoured as a Censor.

Edward Browne was admitted a Fellow on July 29th, 1675, when Sir George Ent was President, who had known Harvey well and is honourably mentioned by Dryden in his "Epistle to Dr. Charlton." Edward, the eldest son of the celebrated Sir Thomas Browne, was 33 years of age when he pledged his faith to the President and to the College, as we have all done, on his admission to the Fellowship, and the silver sceptre which you, Mr. President, have placed before you was on that day in the hands of Sir George Ent.

Edward Browne was already known as a man of letters, for he had published a volume of travels and a translation of a "Discourse of the Cossacks." The travels had been widely read and the Duke of Queensbury and Dover, the Scottish statesman, some years later, thought the translation of the "Discourse of the Cossacks" entertaining enough to take with him in his coach when travelling. Edward Browne had had all the advantages of education which a kind and learned father could give him. He was born at Norwich, probably in 1642, and received his school education at the Grammar School in the Close just within the gate over which Sir Thomas Erpingham, a hero of Agincourt, was then kneeling in his niche as he is to this day. As the author of the "Religio Medici" took his boy to school I can imagine that he pleasantly pointed to the figure and quoted the words of King Henry V. in Shakespeare:—

"Good morrow, old Sir Thomas Erpingham."

The conversation of his home must have been an important element of the education of Edward Browne. There must have been much delight to him in his boyhood in being told the nature and history of the many curious objects in his father's museum, of the narwhal's tooth, then called a unicorn's horn, of the birds eggs, and of the funeral urns.

Sir Thomas Browne in his writings now and then is as sententious as Mr. Shandy, but his letters to his sons and theirs to him show that his nature had little in common with the selfishness of the Squire of Shandy Hall, who forgot every human feeling in his eagerness to establish the truth of his theories. On one occasion, that of the witch trial, he allowed theories drawn from ancient reading to interfere with human feeling, but in his family affection and his kindness to the poor, and in a certain simplicity which shines through his fondness for recondite fragments of knowledge and paradoxical antitheses, Sir Thomas Browne shows a resemblance to that immortal example of goodness of heart, Captain Toby Shandy. A visitor in the household of the Brownes has in his writings a passage which represents the spirit which pervaded it. "I can wonder at nothing more than how a man can be idle; but of all others, a scholar; in so many improvements of reason, in such sweetness of knowledge, in such variety of thoughts: other artizans do but practise, we still learn; others run still in the same gyre to weariness, to satiety; our choice is infinite; others' labours require recreations; our very labour recreates our sports; we can never want either somewhat to do, or somewhat that we would do."[4] In such a home Edward Browne was soon ripe for the university, and he entered at Trinity College, Cambridge, in October, 1657, which makes it probable that 1642 is the true date of his birth and not 1644 as commonly stated, for 13 years was then an unusual age, but 15 years a common one to enter the university.

In 1663 Browne applied for admission to the degree of M.B. He preserved a copy of the supplicat[5] which he wrote on the occasion in one of his notebooks. It states that he had studied medicine for six years and had heard the usual lectures and passed through the required oppositions, responsions, and other exercises of the kind. He asks that these may be sufficient to allow him to enter into the faculty. He has also preserved a copy of the grace for his admission to the degree of Bachelor of Medicine at the congregation at which the grace is read or at the next. The exercises were matter of reading and of argument but Dr. Francis Glisson, then Regius professor of physic, was careful that these should be duly performed and it must have been an advantage to Browne to know something of a professor so deep in anatomy and morbid anatomy and at the same time so exact a clinical observer. Browne seems to have had the opportunity of seeing two bodies dissected probably at the demonstrations founded by Dr. Caius.

After taking his degree Browne returned to Norwich and continued his studies amid a good deal of enjoyment suitable to his years. The Duke of Norfolk was at that time the greatest person in Norwich and his palace was in 1663-64 occupied by his brother Henry and contained a part of their grandfather's wonderful collection of works of art—the Earl of Arundel, with whom Harvey visited Rome. Edward Browne was one of the guests on New Year's Day at this great house. He dissected a bull's heart on Jan. 2nd and danced at the Duke's palace on the 4th. He dined there on the 5th and danced again in the evening and again on twelfth night. Next day he dissected a dog and on the 9th the knee-joint of a calf and another bull's heart and the larynx of a bullock. On Jan. 11th he danced at the palace till 2 o'clock in the morning to celebrate his host's birthday. Next day he dissected a turkey's heart and examined the dentition of a monkey. Two days later he went over the monkey's skeleton and on Jan. 22nd studied the anatomy of a sheep and the next day prepared the right fore foot of a monkey. At the palace he met Dr. De Veau, a godson of Sir Theodore Mayerne, and then or later physician to Charles II. De Veau had with him a febrifuge powder, probably of cinchona bark, which he wished to try on a well-marked case of ague. On Jan. 28th Browne studied the anatomy of oxen and the next day dissected a hare and further studied the monkey's skeleton. In February he prepared the skull and bones of the foot of a hare, dissected another hare, a hedgehog, and a badger. He paid at the same time some attention to botany, noting the flowering aconitum hyemale and helleboraster and gathered many seaside plants. He examined a nasal polypus and saw two patients, a man with consumption and an old man with a fever. He went to London, arriving on Feb. 24th, and next day went to hear an anatomy lecture at Chirurgeon's Hall and saw a human body dissected—the third he had seen. In the morning Dr. Christopher Terne, then assistant physician to St. Bartholomew's Hospital, gave a general introduction to the course in Latin and then lectured on the skin. There was a second lecture in the afternoon on the stomach, intestines, and mesentery and before the lecture Browne was allowed to examine the dissected body in the "anatomising room." He no doubt needed a little fresh air after this well-occupied day and took a walk in St. James's Park, where he saw the king's zoological collection, "divers sorts of outlandish deer, guiny-sheep, a white raven, a great parot, a storke which, having broken its own leg had a wooden leg set on, which it doth use very dexterously. Here are very stately walkes set out with lime trees on both sides and a fine Pall Mall." Next day he heard the third lecture, which was on the suprarenals, the kidneys, and their related parts. He dined with his sister who lived in Clerkenwell and attended

[4] Bishop Hall: Epistle to Mr. Milward.
[5] MS. in British Museum. Sloane, 1797.

the fourth lecture in the afternoon. It was on the pleura, mediastinum, and lungs; he went to see them dissected before the lecture. His record of the fifth lecture has not been preserved. The sixth and last on the afternoon of the third day was on the anatomy of the eye. Dr. Terne concluded the course with a Latin speech. These six lectures given on Thursday, Friday, and Saturday were a course of anatomy of that time. The lecturer was a physician, the dissections were made under his direction by surgeons, the teaching was conducted in their hall and was chiefly for the benefit of the members of their company, though friends of the lecturer and others if properly introduced sometimes attended. Dr. Terne, who gave the lectures, was a well-read physician who had studied at Leyden. He gave a Harveian oration and wrote a thoughtful paper discussing the question, "An respiratio inserviat nutritioni?" but the only part of his writings which has been printed is a pair of Latin verses placed under the portrait of Dr. Christopher Bennet. This portrait is the frontispiece of Bennet's "Tabidorum Theatrum," which is the fuller edition of the first treatise on tuberculosis published in England.

"Hospitii quicumque petis quis incola tanti,
Spiritus egregia hunc consule scripta dabunt."

Browne married Terne's daughter, Henrietta, in 1672.

Dr. Windet, with whom Browne dined on the first lecture day, had practised in Yarmouth and was a correspondent of Sir Thomas Browne. They agreed in a taste for out-of-the-way subjects and for verbal conceits. Windet at the Restoration brought out two Latin poems. One is a condemnation of the execution of Charles I. and begins with the word "occidimus." The other is on "His Majesty's Happy Restoration" and begins with the word "vivimus." A Latin letter "De vita functorum statu," of which young Browne probably thought fit to mention his father's admiration when on the first day of his anatomy lectures he dined with Dr. Windet, is a production containing much reading, Latin, Greek, Hebrew, and Arabic, and showing a turn of thought not unlike that often displayed by Sir Thomas Browne. The writer discusses the meaning of the word Tartarus and debates the precise sense of various Hebrew-Greek words and sentences used in describing the state of man after death as well as all the opinions expressed by Hebrews and Greeks on the same subject. Windet was evidently a vast reader but of the same kind as the Bishop of Gloucester, of whom, when Richard Bently was asked whether Dr. Warburton was not a very learned man, he replied, "Dr. Warburton has a large appetite but a bad digestion." Sir Thomas Browne and Windet had minds fitted with the same kind of subjects, but while the works of Browne continue to appear in new editions and to form part of general reading, those of Windet are never opened. The difference exists in something difficult to express but easy to feel. Dryden has considered such distinctions and has expressed his conclusion with his usual felicity. "A happy genius is the gift of Nature: it depends on the influence of the stars say the astrologers, on the organs of the body, say the naturalists; 'tis the particular gift of Heaven say the Divines, both Christians and Heathens. How to improve it many books can teach us; how to obtain it none; that nothing can be done without it all agree."

On March 1st Browne called on Dr. Joseph Dey, a Norwich man who practised in Crutched Friars, and as he was out walked on to "Mr. King's, living in Little Britain, an ingenious chirurgeon," who showed him various anatomical preparations. "I being desirous to see the inside of a man's stomacke hee cut up one for mee which he had by him." In the afternoon he went to see a private museum near St. Paul's where he was shown a sea elephant's head, a sloth, and an Indian serpent, and then on to Arundel House in the Strand which contained the famous Arundel marbles. Mr. King the surgeon afterwards gave up surgery and took to medicine and was made Sir Edmund King and physician to Charles II. in 1676. He became a Fellow of this College in 1687 and his picture by Lely is in our dining-room. His papers in the Philosophical Transactions show that he was a desirable man for a student to know. He was one of the first persons in London to use a microscope and to pursue histological studies. He also worked at chemistry and entomology and wrote creditable papers on the habits of ants and on leaf-cutter bees. He had dissected 100 human brains, and Dr. Thomas Willis, the author of the "Cerebri Anatome," praises his dissections.

More than 20 years later King took part in the first scene of a memorable tragedy. "On the first of February," says Burnet in his history of his own time, "the King eat little all day, and came to Lady Portsmouth at night, and called for a porringer of spoon meat. It was made too strong for his stomach. So he eat little of it: And he had an unquiet night. In the morning one Dr. King, a Physician, and a Chymist, came, as he had been ordered, to wait on him. All the King's discourse to him was so broken, that he could not understand what he meant. And the Doctor concluded, he was under some great disorder, either in his mind, or in his body. The Doctor amazed at this, went out, and meeting Lord Peterborough, he said, the King was in a strange humour, for he did not speak one word of sense. Lord Peterborough desired he would go in again to the bedchamber, which he did. And he was scarce come in, when the King, who seemed all the while to be in great confusion, fell down all of a sudden in a fit like an apoplexy: He looked back, and his eyes turned in his head. The physician, who had been formerly an eminent Surgeon, said, it was impossible to save the King's life if one minute was lost: He would rather venture on the rigour of the law, than leave the King to perish. And so he let him blood. The King came out of that fit: And the physicians approved what Dr. King had done."

Three days after his visit to Edmund King, Browne returned to Norwich and for the rest of the month worked at botany, dissected a frog, a rat, and a polecat, did a little chemistry, and was consulted in a case of scurvy. Having filled his mind with information at home; at Cambridge and in London Browne was well prepared for the further education of travel. He left home on March 28th, 1664, reached London at midday on the 30th, went by boat to Gravesend and rode thence through Rochester, Sittingbourne, and Canterbury to Dover, whence he sailed to Calais and thence went by Beauvais to Paris. In Paris he lived in a room in the Rue St. Zacharie for seven livres a month and began regular studies at once. He went to four courses of lectures: Dr. Maureau on hernia, Dr. Dyneau on fevers, Dr. Le Bell on surgical operations, and that of Dr. Guy Patin who answered "all doubts and questions proposed," and was a staunch Galenist who laughed at the chemists. Browne also went round the Hotel Dieu and La Charité. In September he left Paris and went to Montpellier and studied there for about a month and then went on to Italy, visiting many cities and staying for some time in Rome. He travelled north again with Dr. Paman, a Fellow of St. John's College, Cambridge, who was afterwards public orator and long lived with Archbishop Sancroft and must have been an improving companion as Sydenham valued his friendship. Some of Paman's books are in our library.

Browne went to Venice and then spent some weeks at Padua studying anatomy. The dissection was admirably done by a demonstrator named Marchetti who had been instructed by Sir John Finch, "one that in anatomy hath taken as much pains as most now living." This was Dr. Finch of Christ's College, Cambridge, a connexion by marriage of Harvey. Browne left Padua in April, 1665, and went to Montpellier again, thence proceeding to Paris which he reached in the middle of June and attended lectures on botany and chemistry, short courses of about a month's duration. In July he caught small-pox, an event which happened in the life of very many students at universities of that period. Some months later he returned home. He had learned French and Italian. In August, 1668, he went abroad again to Holland, where he visited universities, their libraries and museums, and attended lectures. He went on to Vienna and there learned much from Lambecius the librarian, and seems to have learned colloquial Greek. From Vienna he went into Thessaly and visited Larissa in order to know the air and place in which Hippocrates practised. He also made a tour in Hungary and one in Styria and Carinthia. He came home in 1669. He went abroad once more in 1673, visiting Cologne and the Low Countries. He was admitted Fellow of this College in 1675 and elected physician to St. Bartholomew's Hospital in 1682 and was our President 1704–08. He died in 1708.

I have chosen to consider Dr. Edward Browne in relation to the education of physicians in London in his time, because while his opportunities of learning were excellent they were yet such as physicians often enjoyed. He began life in an educated home, going to the grammar school of his native city and at the age of 15 years went to the university, where after six years he took the degree of M.B. He had seen

some human dissection but had not done any with his own hands and had attended some university exercises, probably both lectures and disputations, conducted by Glisson. He had probably read the Aphorisms of Hippocrates, of which Ralph Winterton, Glisson's predecessor as professor of physic, had edited a convenient edition with translations of each aphorism into Greek and Latin verse, and from some passages in his writings he seems to have also read the Hippocratic treatises on air, water, and situation as well as the epidemics. He had also some reading in Galen. He could write and speak Latin. After taking his M.B. degree he continued his anatomical studies and worked practically at zoology, botany, chemistry, and pharmacology, and at medicine, parts of surgery, and morbid anatomy. He learned French and Italian and could speak a little Greek. He used every opportunity of conversing with learned men, such as Swammerdam the zoologist, Glauber the chemist, and Lambecius the bibliographer. He had read widely—"Purchas, his Pilgrims," the travels of de la Mantinière in the Arctic regions, Raleigh's "History of the World," Ashmole's "Order of the Garter," and the Duchess of Newcastle's "New Blazing World." His father advised him to study Cicero and not to read much of Lucretius. "Quotations may be taken from it," says Sir Thomas Browne, but "otherwise I do not much recommend the reading or studying of it, there being divers impieties in it, and 'tis no credit to be punctually versed in it; it containeth the Epicurean natural philosophy." Besides his university examination, which was a kind of disputation, Edward Browne was no doubt examined in this College for admission as a candidate in 1668 after he had been engaged in medical studies for about ten years. He took his M.D. degree at Oxford in 1667, when he had studied nine years, and in his own university in 1670. This degree was probably given on proof of study in the faculty. It was chiefly in less regulated periods and work that this course of education differed from that of a physician in our time. There were as yet no organised schools of medicine in England and except in this College there was no thorough examination of candidates.

The study of history is most worth pursuing when the consideration of the past can be made useful to us in the present. The lesson, "Ars longa, vita brevis," is plain enough wherever we contemplate the attempts of men to learn and to teach medicine. Further than this, we may learn that it is only subjects thoroughly learned that are of value, and learned so that the student can feel that he has sought out things for himself and is not resting on the dicta of a teacher.

Last, we may conclude that medicine in itself, with its essential preliminary, anatomy, contains sufficient opportunities of training in every form of observation and of logical deduction from what is observed and, that for the rest, a mind which has been opened by a sound literary education is that best adapted to follow the lifelong study of medicine which is the duty of every physician. These are the conclusions to which I have been led by a study of the history of the education of physicians in London from the time of John Mirfeld to that of Edward Browne, from the Middle Ages to the time when the methods of study which we now follow began to be used.

ON TRAUMATISM AS AN EXCITING CAUSE OF ACUTE APPENDICITIS: WITH ILLUSTRATIVE CASES[1]

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ATTENTION has recently been directed to the fact that under certain conditions traumatism may act as an exciting cause in the production of an attack of acute appendicitis and the matter is one of considerable interest not only from a clinical but also from a medico-legal point of view.

The question of cause and effect when appendicitis develops after an injury may involve important issues; for example, as regards the liability of accident insurance companies; or, again, in cases where an attack of appendicitis is followed by a fatal result and there is a history of an antecedent injury due to personal violence. In these circumstances it is probable that the appendix was previously in an unhealthy or abnormal condition, for it is difficult to explain how violence applied to the abdomen could set up inflammation in the appendix unless this was the case. This view is supported by statistics, for in 50 cases collected from various sources by Kelly and Hurdon,[2] where appendicitis followed an injury, there was definite evidence that an abnormal condition of the appendix had pre-existed in 40 instances (80 per cent.). The commonest was the presence of a fæcal concretion, this complication having been present in no less than 30 of the 40 cases (75 per cent.).

It is a well-recognised fact that deposits of inspissated fæcal matter or even calcareous concretions may be present in the appendix for a considerable time without causing any symptoms, for they are frequently found in operations for acute suppurative appendicitis and also at necropsies where previously there had been no indications whatever of their existence. If violence is applied to the abdomen over the region of an appendix which contains a fæcal concretion it can readily be understood that the wall of the appendix at this spot, probably already somewhat damaged by the presence of the concretion, then becomes so injured that it suddenly ruptures or an attack of acute inflammation is set up, which may quickly terminate in ulceration and perforation. It is also possible that an appendix which is completely stenosed at some point in its course and distended beyond with a mucoid or muco-purulent fluid—a condition which is not at all uncommon—may suddenly rupture as the result of violence applied to the abdomen and its contents become extravasated into the peritoneal cavity.

The following case is an illustration of the fact that a direct injury may excite an attack of acute suppurative appendicitis when a concretion is present.

CASE 1.—A boy, aged nine years, with no previous history of any symptoms of appendicitis, was struck on the abdomen by some boys. The following day he complained of pain in the right iliac fossa and was confined to bed. On the second day he vomited continuously. On the fourth day he was admitted into the Manchester Royal Infirmary. His temperature was 100° F., the pulse was 120, and there was well-marked evidence of general peritonitis. The abdomen was opened shortly after admission and the appendix, which was inflamed and almost perforated at one spot, contained a fæcal concretion; there were numerous recent adhesions round the appendix and pus was diffused throughout the peritoneal cavity. Death took place about 12 hours after the operation. An inquest was held and the jury returned a verdict of "Accidental death."

In the following case, though the appendix was not seen and a concretion was not found, the condition was probably the same as in the preceding.

CASE 2.—A boy, aged seven years, who had previously enjoyed good health, while at play one morning fell upon his abdomen. He returned home complaining of abdominal pain which became much worse towards evening. Symptoms of general peritonitis developed, the temperature rising to 104° F., and the pulse becoming very rapid. When seen in consultation on the third day the abdomen was extremely tender and so distended that it was impossible to make out any swelling in the region of the appendix. The usual incision was at once made over the appendix and a large quantity of extremely foul pus was evacuated from the general peritoneal cavity. The appendix was not seen and the boy's condition being too grave to permit of any search being made for it the peritoneal cavity was merely washed out and drained. Contrary to expectation the boy made a good recovery from the operation and at the end of a month the wound was healed.

The following case differs from those described in the fact that the attack of appendicitis subsided without suppuration.

CASE 3.—A boy, aged 12 years, with no previous history of any symptom of appendicitis, was about to dive into a swimming bath when he was suddenly pushed in by a playmate so that he fell flat upon his abdomen, which forcibly struck the water. He was immediately seized with abdominal pain, most marked on the right side and so severe that he was obliged to leave the bath and at once return home. The following day he remained in the house, feeling unwell, and he was afterwards confined to bed, frequently

[1] A communication delivered before the Manchester Medical Society on Nov. 1st, 1905.

[2] The Vermiform Appendix and its Diseases, 1905, p. 807.

vomiting, until his admission into the Manchester Royal Infirmary on the fourth day. When admitted his temperature was 101·2° F. and his pulse was 84. The abdomen was somewhat distended, with general tenderness and resistance, most marked on the right side. Above the outer part of Poupart's ligament a distinct induration could be felt. In the course of three or four days the general distension and tenderness subsided under the application of belladonna and fomentations, and the temperature became normal. The induration above Poupart's ligament also gradually disappeared but a distinct thickening remained in the situation of the appendix and could still be detected at the time of his discharge three weeks subsequently, when he was sent to the convalescent home in the country. He came to show himself about a month later and the region of the appendix was then quite free from any swelling. Up to the present time, four months subsequently, there has been no further trouble.

It is also probable that without the application of any direct violence traumatism may excite an attack of appendicitis in another manner—e.g., a severe strain, by causing a sudden and forcible contraction of the abdominal muscles, may separate or break down adhesion between the appendix and the abdominal wall, causing an extravasation of blood either into or around the appendix, or possibly producing a rupture of its wall and allowing its contents to escape. Kelly and Hurdon state that in ten cases of appendicitis following an injury, where no concretion was found, there were evidences of old adhesions in seven. The following case probably belongs to this class, it being an established fact that mild attacks of appendicitis are often followed by the formation of firm adhesions between the appendix and adjacent structures. Statistics also show that adhesions are frequently found at necropsies where there has been no history of any attacks of appendicitis occurring during life.

CASE 4.—A boy, aged 15 years, who in the preceding nine months had suffered from two mild attacks of abdominal pain and also from occasional slight "bilious" attacks, whilst out fishing strained himself in jumping across a stream and was at once seized with severe pain in the abdomen. The pain continued and in the evening he complained of feeling unwell. Symptoms of acute appendicitis developed and when seen in consultation later in the evening of the third day he presented typical symptoms of general peritonitis. The temperature was 101° F. and the pulse was 130. There was general distension of the abdomen with dulness in each flank; over the region of the appendix there was slight increase of dulness with more resistance than on the opposite side. On the following morning the abdomen was opened and was found to be full of pus. The boy's condition was too serious to allow of any search being made for the appendix and no concretion was seen. Death took place about 12 hours after the operation. No necropsy was made.

Manchester.

ON THE MULTIPLICITY OF COMPLEMENTS IN BACTERIOLYTIC SERA.

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OF recent years most of the leaders of science have turned to hæmolysis in vitro for the purpose of ascertaining the general truths underlying lysogenic action. And whilst it will be readily admitted that this indirect method at present offers the best possibilities of obtaining firm foothold for an attack on the problem of bacteriolysis, yet none the less the ultimate solution of this latter problem will only be obtained by testing directly those general principles that may have been obtained by indirect methods. Further, for those who are not prepared to admit that the laws of hæmolysis and bacteriolysis are identical until they have been proved to be so, any direct attempt to solve the problem of bacteriolysis has this great advantage that results so obtained can only be invalidated on the grounds of faulty technique, erroneous observations, conceptions, or conclusions. Results so obtained cannot, however, be discredited on the ground of their incompatibility with results obtained by indirect methods such as hæmolysis.

The literature on the subject of immunity has now attained to such vast proportions that any attempt at a critical *résumé* would be quite out of place in a communication of this nature. For the purposes of this paper, however, a very brief sketch will suffice. The present state of our knowledge with regard to bacteriolysis was summarised as follows in the presidential address[1] to the Section of Pathology at the Oxford meeting of the British Medical Association in 1904:

> We must recognise that it is limited to the statement that the killing of the bacteria is associated with the presence in the serum of an immune animal of two substances, one thermolabile (complement) ..... and the other thermostabile (immune body). ..... There is this further fact that we are only certain of the specificity of the immune body—that is, we know that immune body will only act deleteriously on the protoplasm which stimulated its genesis. We cannot make a similar statement regarding complement.

If this statement be enlarged so as to include normal sera it will represent fairly accurately the state of our knowledge at the present day. With regard to the complement, it may be briefly stated that as the result of different conceptions as to the nature of lysogenic action there are two great schools of thought, one of which holds that there are at most not more than two complements, one being concerned in the lysis of bacteria and the other in the lysis of cells generally. The other school maintains that there are many different complements differing in their relations to the various amboceptors. The supporters of the pluralistic doctrine, working on the principle that identical chemical substances should give identical results with the same reagent, have employed the methods of differential heating, differential filtration, selective absorption, the use of anti-complements—natural and artificial—treatment with neutral substances, such as silica, digestion with ferments as papain, and treatment with alkalies, &c., to prove their contention. The result of their labours has been to give a commanding position to the doctrine of the multiplicity of complements in hæmolytic sera. With regard to bacteriolytic sera, it was shown by Wright and Windsor,[2] that if to a serum normally bactericidal for the bacillus typhosus a sterilised typhoid or cholera culture be added, the antibactericidal effect which is in each case obtained is obtained indifferently with either variety of sterilised culture. These observers argued from this that either the bactericidal substance in the serum which kills the typhoid bacillus is one and the same substance which kills the cholera vibrio, or alternatively that the bactericidal substance which kills the cholera vibrio possesses an element in common with the bactericidal substance which kills the typhoid bacillus. As the result of further experiments they concluded "that the bactericidal effects of a serum, at any rate in the case of a serum derived from the immunised animal, is achieved by the coöperation of two bactericidal elements, one of these being a chemical agent which exerts an action on more than one species of micro-organism, and the other a chemical agent which is specific for each particular species of micro-organism." Longcope,[3] working in the Ayer Clinical Laboratory, Pennsylvania Hospital, came to a very different conclusion. The method of this observer was to estimate the amount of unheated human serum necessary to reactivate one cubic centimetre of heated human serum for bacillus typhosus and bacillus coli respectively, standard quantities of emulsified agar cultures of these two organisms being used for the test. In the case of normal persons it was found that one-twentieth of a cubic centimetre of unheated serum was sufficient to re-activate one cubic centimetre of heated serum for a standard quantity of a typhoid emulsion. For the same quantity of the coli emulsion six-tenths of a cubic centimetre of unheated serum were necessary to re-activate one cubic centimetre of heated serum. In the case of the blood of persons suffering from typhoid fever it was found that the re-activating power of the serum was greatly diminished for typhoid bacilli and not for colon bacilli. The re-activating power of the sera of these typhoid patients was also tried against bacillus paracoli and bacillus dysenteriæ, and it was found that the sera showed a decreased re-activating power for typhoid bacilli alone. From this Longcope inferred the existence of a specific typhoid complement and concludes from his work that human blood

[1] Brit. Med. Jour., Sept. 7th, 1904.
[2] Journal of Hygiene, October, 1902.
[3] Ibid., January, 1903.

serum contains a multiplicity of bacteriolytic complements. Longcope's observations are, however, very meagre, his conclusions being based on the examination of the blood of only three typhoid patients. Of these three cases the result of the examination of the blood of one is hardly in accordance with his conclusions, as in the tables it is shown that one-twentieth of a cubic centimetre of unheated serum was able to re-activate one cubic centimetre of heated serum, this being the standard laid down by him for normal serum. Further, he altogether neglected to consider the phenomenon of "Komplementablenkung." The object of the present investigation was to ascertain definitely the existence or non-existence of a specific typhoid complement in the serum of an immunised animal, the serum being normally bactericidal for both bacillus typhosus and the cholera vibrio.

Collection and storage of serum.—The animal selected for the supply of serum was the goat which in India is one of the most useful of laboratory animals. A large external jugular vein covered by a thin integument permits of the easy withdrawal of samples of blood under aseptic conditions. Further, relatively large quantities of blood can be withdrawn at short intervals without inconveniencing the animal and with no more discomfort than that occasioned by the prick of a hypodermic needle. The procedure adopted was as follows: The neck of the animal having been shaved over the region of the external jugular vein and scrubbed with 5 per cent. carbolic acid the needle of a sterilised hypodermic syringe of 20 cubic centimetres capacity was introduced into the jugular vein and the syringe was filled with blood. The syringe was then withdrawn and the needle was unshipped from the barrel of the syringe with sterilised forceps. The contents of the syringe were then transferred to a sterile conical glass vessel of about 50 cubic centimetres capacity and provided with a metal cover which fitted after the manner of the upper lid of a Petri dish. After the blood had clotted the clot was loosened by passing a thin glass rod between the clot and the sides of the vessel. The vessel was then placed aside for 24 hours, after which the serum was ready for experiment. I have kept serum collected and stored in this way for months without bacterial development taking place. The same goat was used throughout this investigation except where otherwise stated.

Technique for the estimation of the bactericidal power of the serum.—The technique employed was based on that introduced by my former teacher, Dr. A. E. Wright,[4] in connexion with his researches on the bactericidal power of human serum. The stem of the diluting pipette was graduated in ten divisions of five cubic millimetres each, the remaining graduation marks indicating 450 and 500 cubic millimetres respectively. I have on a previous occasion[5] alluded to the general utility and accuracy of this modification of Wright's original pipette. When quantities such as 200 and 250 cubic millimetres were being used small pipettes graduated for these quantities by means of Wright's method were used. Dilutions of the test broth cultures employed were made in sterile watch-glasses as advised by Wright.

TABLE I.—*Giving the Quantities found most convenient for making the Dilutions employed.*

Dilution.	Culture.	Broth.
2 fold.	100 cubic millimetres.	100 cubic millimetres.
5 ,,	50 ,, ,,	200 ,, ,,
10 ,,	50 ,, ,,	450 ,, ,,
25 ,,	10 ,, ,,	240 ,, ,,
50 ,,	10 ,, ,,	490 ,, ,,
100 ,,	5 ,, ,,	495 ,, ,,
1,000 ,,	50 cubic millimetres of 100-fold dilution.	450 ,, ,,
10,000 ,,	50 cubic millimetres of 1000-fold dilution.	450 ,, ,,
100,000 ,,	50 cubic millimetres of 10,000-fold dilution.	450 ,, ,,
1,000,000 ,,	50 cubic millimetres of 100,000-fold dilution.	450 ,, ,,
100,000,000 ,,	10 cubic millimetres of 1,000,000-fold dilution.	990 ,, ,,

Culture enumeration was made when necessary from the 100,000,000-fold dilution in the way described by Wright.[6] In order to test the bactericidal power of the test serum employed equal quantities of the undiluted test serum and an ascending series of dilutions of a 24 hours broth culture of the test organism were brought together in small test-tubes. These test-tubes were made from glass tubing, being blown and lipped in the ordinary way. The average dimensions of these tubes were as follows: length, 4 5 to 5 centimetres; capacity about 1 cubic centimetre. When using larger quantities of serum than 50 cubic millimetres the bottoms of these tubes were given a bulbous shape, the extreme diameter of the bulb being about a centimetre. The steps of the technique were as follows. Tubes were arranged in racks according to requirements and then labeled with a grease pencil. Measured quantities of the test serum were then filled into the tubes of each series. Appropriate dilutions of a 24 hours broth culture of the test organism were then made in a series of sterile watch glasses and the culture enumerated when necessary. Equivalent portions of each dilution, beginning at the highest dilution, were then added to the tubes containing the test serum. During this part of the technique care must be taken not to soil the sides of the tubes when adding the dilutions of the test organism. If this precaution be not observed irregular results will be obtained. It is for this reason that the tubes are given a bulbous shape, as by this device the capacity of the tubes is increased without increasing the length. After the dilutions of the test organism have been added to the series of tubes containing the test serum the contents of the tubes were thoroughly mixed by shaking. The tubes were then incubated at 37° C. for from 18 to 24 hours. At the end of this time to each tube 0·5 cubic centimetre of sterile broth was added with the pipette, beginning at that tube which contained the highest dilution of the test organism. The tubes were then incubated at 37° C. for 48 hours, after which the bactericidal power of the test serum for the test organism was ascertained by observing the last tube in the series which showed growth. In the tables in this paper the term "growth" means that the growth obtained presented the characters of a pure culture of the test organism. In cases of doubt the purity of the culture was ascertained by the usual methods. The same strains of bacillus typhosus and spirillum choleræ Asiaticæ were used throughout these experiments. The strain of bacillus typhosus employed was isolated locally from a case of typhoid fever, whilst the strain of spirillum choleræ Asiaticæ was supplied from the Parel Laboratory, Bombay. This latter strain was isolated from an acute case of cholera in Baroda in 1900. Sterility controls for serum, &c., were always put up and only those experiments are recorded in which these controls proved sterile.

The first step in the investigation was to ascertain the bactericidal power of normal goat's serum 24 hours old in contact with clot for bacillus typhosus and spirillum choleræ Asiaticæ. The result is shown in Table II. In addition I may state that for most examples of the bactericidal power of normal human serum for cholera and typhoid fever published by Wright in his various papers I can produce a parallel example from the series of goats tested by me from time to time during the past year. Normal goat's serum 24 hours old in contact with clot is comparable with normal human serum so far as its bactericidal power for typhoid fever and cholera is concerned.

We have next to consider the changes which occur in the serum when kept in contact with clot. When stored in contact with the clot it was found that if the serum were examined 24 hours after the blood had been withdrawn and again after 48 hours the bactericidal power of the serum had undergone little or no change. In some cases there was apparently a slight increase of bactericidal power (Table II.).

The application of the principle of selective absorption to the solution of the problem.—In applying the principle of selective absorption it will first be necessary to ascertain the relative quantities of a given amboceptor and its complement in a given serum unit. If in the serum unit it should be found that the quantity of the given amboceptor present is such that it is unable to insure that all the complement capable of combining with it shall be used up it will be necessary to artificially increase the amount of amboceptor to the necessary strength. Having selected the typhoid

[4] Proceedings of the Royal Society, 1902; THE LANCET, July 1st, 1901, p. 1502.

[5] THE LANCET, June 17th, 1905, p. 1641.

[6] THE LANCET, June 1st, 1901, p. 1532.

TABLE II.—*Showing the Bactericidal Power of Normal Goat's Serum 24 hours old for (1) Bacillus Typhosus and for (2) Spirillum Cholerae Asiaticae.*

Dilutions in which the 24 hours old living broth cultures were employed.	50 c.mm. N.G.S.* 24 hours old and 50 c.mm. of a dilution of a typhoid culture.	50 c.mm. N.G.S. 24 hours old and 50 c.mm. of a dilution of a cholera culture.	50 c.mm. N.G.S. 24 hours old and 50 c.mm. of a dilution of a typhoid culture containing 165,000,000 organisms per c.c.	50 c.mm. N.G.S. 48 hours old and 50 c.mm. of a dilution of a typhoid culture containing 965,000,000 organisms per c.c.
Undiluted culture ...	Growth	Growth	Growth	Growth
2 fold dilution	,,	Sterile	,,	,,
5 ,, ,,	,,	,,	Sterile	Sterile
10 ,, ,,	,,	,,	,,	,,
25 ,, ,,	,,	,,	,,	,,
50 ,, ,,	,,	,,	,,	,,
100 ,, ,,	Sterile	,,	,,	,,
1,000 ,, ,,	,,	,,	,,	,,
10,000 ,, ,,	,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,

* Normal goat's serum.

amboceptor and 50 cubic millimetres of normal goat's serum 24 hours old in contact with clot for the amboceptor and serum unit respectively, experiments to this end were conducted as follows. 30 small sterile test-tubes arranged in series of ten were each charged with 50 cubic millimetres of normal goat's serum 24 hours old. To each tube of Series 2 50 cubic millimetres of the same serum which had previously been heated to 55° C. for half an hour were added, thereby doubling the amount of typhoid amboceptor originally present in the 50 cubic millimetres of unheated serum. To each tube of Series 3 100 cubic millimetres of heated normal goat's serum were added, thereby trebling the amount of the typhoid amboceptor. Ascending dilutions of a 24 hours broth culture of bacillus typhosus were added to each series as set forth in Table III. The net result of these experiments was to

TABLE III.—*Showing the Results of Addition of Bacillus Typhosus Culture.*

Dilutions of the 24 hours old living broth culture of bacillus typhosus employed as a test containing 430,000,000 organisms per c.c.	50 c.mm. N.G.S.* 24 hours old and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 50 c.mm. H.N.G.S.† and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 100 c.mm. H.N.G.S. and 50 c.mm. of a dilution of the typhoid culture.
Undiluted culture	Growth	Growth	Growth
2 fold dilution ...	,,	,,	,,
5 ,, ,,	,,	,,	,,
10 ,, ,,	,,	Sterile	Sterile
25 ,, ,,	,,	,,	,,
50 ,, ,,	,,	,,	,,
100 ,, ,,	,,	,,	,,
1,000 ,, ,,	Sterile	,,	,,
10,000 ,, ,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,

* Normal goat's serum. † Heated normal goat's serum.

show that doubling the amboceptor produced the limit increase of bactericidal power but that trebling the amboceptor did not, as a rule, decrease the bactericidal power. A typical experiment is recorded in Table II. In view of these results it was decided to treble the amount of typhoid amboceptor in the following experiments in order to insure the combination of all complements in the serum unit capable of combining with it.

We have next to consider the procedure necessary for the removal from the serum unit of all the complement capable of combining with the typhoid amboceptor. In conducting experiments to this end the artificially prepared serum unit (two parts heated serum, one part unheated serum) was saturated with a sterilised emulsion of a 24 hours' agar culture of bacillus typhosus and placed in the incubator for varying periods of time. The mixture was then centrifugalised and the bactericidal power of the supernatant fluid for typhoid fever and cholera ascertained. The details of the technique were as follows. A sterile centrifuge tube provided with a sterile rubber cap was prepared containing one cubic centimetre of normal goat's serum, 24 hours old; two cubic centimetres of the same serum heated (H.N.G.S.); and one cubic centimetre of a sterilised emulsion of bacillus typhosus. The sterilised emulsion of bacillus typhosus was prepared by emulsifying the whole of the 24 hours agar slope culture with two cubic centimetres of sterile normal salt and then heating to from 60° to 64° C. for 15 minutes. As I have never been able to obtain from my goat by natural or artificial means a sample of serum capable of sterilising an equal volume of a 24 hours broth culture of bacillus typhosus the quantity of the emulsion added to the centrifuge tube was considered sufficient to insure the removal therefrom of all the complement capable of combining with the typhoid amboceptor. For a control a sterile test-tube was prepared containing one cubic centimetre of normal goat's serum 24 hours old, two cubic centimetres of heated normal goat's serum; and one cubic centimetre of sterile normal salt. The centrifuge tubes were then incubated at 37° C. for different periods of

TABLE IV.—*Showing the Bactericidal Power of Supernatant Fluid.*

Dilutions of the 24 hours old living broth cultures employed.	200 c.mm. of Sn.F.* and 50 c.mm. of a dilution of a typhoid culture.	200 c.mm. of C.F.† and 50 c.mm. of a dilution of a typhoid culture.	200 c.mm. of Sn.F. and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. of C.F. and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. of sterile broth and 50 c.mm. of a dilution of a cholera culture.
After 15 minutes' incubation.					
100 fold dilution	Growth	Sterile	Sterile	Sterile	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,
After 25 minutes' incubation.					
100 fold dilution	Growth	Growth	Sterile	Sterile	Growth
1,000 ,, ,,	,,	Sterile	,,	,,	,,
10,000 ,, ,,	,,	,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,
After 30 minutes' incubation.					
100 fold dilution	Growth	Growth	Sterile	Sterile	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	Sterile	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,
After one hour's incubation.					
100 fold dilution	Growth	Sterile	Growth	Sterile	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,
After two hours' incubation.					
100 fold dilution	Growth	Sterile	Growth	Sterile	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	,,	,,	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,

* Supernatant fluid. † Control fluid.

time, varying from 15 minutes to two hours. After incubation the centrifuge tube was centrifugalised and the supernatant fluid pipetted off. The supernatant fluid (Sn.F.) and the control fluid (C.F.) were then tested for bactericidal power against ascending dilutions of a typhoid culture and a cholera culture, as set forth in Table IV. As both the supernatant fluid and the control fluid represent a fourfold dilution of the original serum unit 200 cubic millimetres of each were used to represent the serum unit of 50 cubic millimetres. Sterility controls for supernatant fluid and control fluid were always put up and only those experiments are recorded in which these controls proved sterile. A reference to the tables at once shows the importance of the time factor in experiments of this nature. Two hours' incubation yields a supernatant fluid devoid of bactericidal power for both typhoid fever and cholera. Incubation for one hour gives a similar result. Incubation for half an hour, 25 minutes, and 15 minutes yields, however, a supernatant fluid which, whilst devoid of bactericidal power for typhoid fever, is still strongly bactericidal for cholera. These experiments contain several obvious fallacies. In the first place, the loss of bactericidal power for typhoid fever resulting from 15, 25, and 30 minutes incubation may be due to the abstraction of the specific amboceptor, complement having been left behind; and secondly, these experiments do not enable us to state whether or not incubation for the corresponding periods has in any way diminished the bactericidal power of the supernatant fluid for cholera as compared with that of the control fluid. A second series of experiments was conducted for the purpose of settling these points. An extra series of tubes of the supernatant fluid, fortified by the addition of 50 cubic millimetres of heated normal goat's serum to each tube to replace amboceptor, was put up when testing the bactericidal power of the supernatant fluid for typhoid fever. At the same time a complete estimation of the bactericidal power for cholera of both the supernatant fluid and the control fluid was made (Table V.). The results are very striking. It will be seen

TABLE V.—*Showing the Bactericidal Power of Supernatant Fluid after 15 Minutes' Incubation.*

Dilution of the 24 hours old living broth cultures employed.	200 c.mm. Sn.F.* and 50 c.mm. of a dilution of a typhoid culture.	2.0 c.mm Sn.F.; 50 c.mm. H.N.G.S.† and 50 c.mm. of a dilution of a typhoid culture.	200 c.mm. C.F.‡; and 50 c.mm. dilution of a typhoid culture.	200 c.mm. Sn.F. and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. C.F. and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. sterile broth and 50 c.mm. of a dilution of cholera culture.
Undiluted culture...	—	—	—	Growth	Growth	—
2 fold dilution	—	—	—	,,	,,	—
5 ,, ,,	—	—	—	,,	,,	—
10 ,, ,,	—	—	—	,,	,,	—
25 ,, ,,	—	—	—	,,	Sterile	—
50 ,, ,,	—	—	—	,,	,,	—
100 ,, ,,	Growth	Growth	Growth	,,	,,	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	,,	Sterile	Sterile	,,	,,
100,000 ,, ,,	,,	,,	,,	,,	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	,,	,,

* Supernatant fluid. † Heated normal goats' serum. ‡ Control fluid.

that after 15 minutes' incubation the addition of heated serum to the supernatant fluid does not restore its bactericidal power for typhoid fever, whilst the bactericidal power of the supernatant fluid for cholera has undergone considerable diminution as compared with that of the control fluid. Viewed broadly, these experiments warrant the statement that after 15 minutes' incubation of a mixture of serum and sterilised typhoid emulsion prepared in the way previously described the bactericidal power of the supernatant fluid is completely removed for typhoid fever, whilst it is impaired for cholera, the phenomenon not being due to abstraction of amboceptor only. If the mixture be incubated for one hour or longer then all the bactericidal power for both typhoid fever and cholera has been completely removed. These experiments admit of at least two explanations. One is that we have here evidence of the existence of two complements analogous to the dominant and non-dominant complements of Ehrlich in hæmolytic sera, with the proviso that the combination between amboceptor and dominant complement is a necessary antecedent to the combination of amboceptor and non-dominant complement. The other is that we are dealing with only one complement. In this case the experiments could be explained by stating that after 15 minutes' incubation so much complement had been absorbed that the remainder was in such dilution that the combination of bacillus typhosus + typhoid amboceptor + complement could not take place unless bacillus typhosus was present in very large quantities. The dilution of the remaining complement was not, however, sufficient to prevent the bactericidal action for cholera, which presumably can make use of complement in a much higher dilution than bacillus typhosus. As we might expect after the lapse of 15 minutes' incubation, sufficient complement is removed by the typhoid amboceptor to reduce considerably the bactericidal action for cholera. If the mixture be incubated for longer periods of time increasing quantities of complement are fixed by the typhoid amboceptor until at length all the complement has been fixed and the bactericidal action of the supernatant fluid for both cholera and typhoid fever completely removed in consequence. It becomes then a point of importance to determine which of these two explanations is the correct one. In this connexion experiments were conducted for the purpose of ascertaining what occurs if after 15 minutes' incubation the mixture be centrifugalised, the supernatant fluid at once re-saturated with a sterilised emulsion of bacillus typhosus, and re-incubated for 45 minutes. If the theory of a dominant and non-dominant complement be the correct one then re saturation and re-incubation should not materially reduce the bactericidal power of the supernatant fluid for cholera as compared with that of the supernatant fluid after 15 minutes' incubation. If, however, the single complement theory be the correct one then we should expect that the bactericidal power of the supernatant fluid against cholera after re-saturation and re-incubation would be steadily reduced and ultimately completely removed. The steps of the procedure were as follows. Two sterile rubber-capped centrifuge tubes were prepared, each containing one cubic centimetre of normal goat's serum 24 hours old; two cubic centimetres of heated normal goat's serum; and one cubic centimetre of sterilised typhoid emulsion. For controls two sterile test-tubes were prepared, each containing one cubic centimetre of normal goat's serum 24 hours old; two cubic centimetres of heated normal goat's serum; and one cubic centimetre of normal salt. These tubes were labeled "C.F. 1" and "C.F. 2." The two centrifuge tubes and the two test tubes were placed in the incubator at 37° C. After 15 minutes' incubation all four tubes were removed and the centrifuge tubes were at once centrifugalised. The supernatant fluid was then pipetted off into two sterile test-tubes. The supernatant fluid in one of these tubes was labeled "Sn.F. 1" and placed on one side, together with the control tube labeled "C.F. 1." The remaining supernatant fluid was then re-saturated with one cubic centimetre of sterilised typhoid emulsion and filled into a sterile rubber-capped centrifuge tube. One cubic centimetre of sterile normal salt was then added to the control tube labeled "C.F. 2" and both the centrifuge tube and the control tube were returned to the incubator. The bactericidal action of "Sn.F. 1" and "C.F. 1" was then tested against cholera and typhoid fever. After 45 minutes' re-incubation the centrifuge tube and the control tube were removed from the incubator. The centrifuge tube was at once centrifugalised and the supernatant fluid was pipetted off and denoted as "Sn.F. 2." The bactericidal power of "Sn.F. 2" and "C.F. 2" was then tested for both typhoid fever and cholera. The result is set forth in Table VI. It will be seen that after 45 minutes' re-incubation the bactericidal power of Sn.F. 2 for cholera has been practically completely removed. This militates against the theory of a dominant and non-dominant complement. The fact that 45 minutes' re-incubation still leaves Sn.F. 2 with a trace of bactericidal action for cholera is easily explicable on the ground that the absorptive action is naturally a little slower after the process has been stopped and has to be re-started. These experiments, I think, suggest a reconsideration of the theory of a specific typhoid complement and indicate that the complement for typhoid fever and cholera is probably one and the same.

TABLE VI.—*Showing the Bactericidal Power of Supernatant Fluids Nos. 1 and 2.*

No. 1, after 15 minutes' incubation.

Dilutions of 24 hours old living broth cultures employed.	200 c.mm. Sn.F. 1* and 50 c.mm. of a dilution of a typhoid culture.	200 c.mm. Sn.F. 1, 50 c.mm. H.N.G.S.† and 50 c.mm. of a dilution of a typhoid culture.	200 c.mm. C.F. 1‡ and 50 c.mm. dilution of a typhoid culture.	200 c.mm. Sn.F. 1 and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. C.F. 1 and 50 c.mm. of a dilution of a cholera culture.	200 c.mm. sterile broth and 50 c.mm. of a dilution of a cholera culture.
10 fold	—	—	—	Growth	Sterile	—
25 ,,	—	—	—	,,	,,	—
50 ,,	—	—	—	,,	,,	—
100 ,,	Growth	Growth	Growth	Sterile	,,	Growth
1,000 ,,	,,	,,	,,	,,	,,	,,
10,000 ,,	,,	,,	Sterile	,,	,,	,,
100,000 ,,	,,	,,	,,	,,	,,	,,
1,000,000 ,,	,,	,,	,,	,,	,,	Sterile

* Supernatant fluid No. 1. † Heated normal goat's serum.
‡ Control fluid No. 1.

No. 2, after 45 minutes' re-incubation.

Dilutions of the 24 hours old living broth cultures employed.	250 c.mm. Sn.F. 2* and 50 c.mm. dilution of a typhoid culture.	250 c.mm. C.F. 2† and 50 c mm. of a dilution of a typhoid culture.	250 c.mm. Sn.F. 2 and 50 c.mm. of a dilution of a cholera culture.	250 c.mm. C.F. 2 and 50 c.mm. of a dilution of a cholera culture.	250 c.mm. sterile broth and 50 c.mm. of a dilution of a cholera culture.
10 fold dilution	—	—	Growth	Sterile	—
25 ,, ,,	—	—	,,	,,	—
50 ,, ,,	—	—	,,	,,	—
100 ,, ,,	Growth	Growth	,,	,,	Growth
1,000 ,, ,,	,,	,,	,,	,,	,,
10,000 ,, ,,	,,	Sterile	,,	,,	,,
100,000 ,, ,,	,,	,,	Sterile	,,	,,
1,000,000 ,, ,,	,,	,,	,,	,,	Sterile

* Supernatant fluid No. 2. † Control fluid No. 2.

The application of the principle of "Komplementablenkung" to a solution of the problem.—Opinions differ widely as to the real interpretation of this phenomenon, but as a *résumé* of current opinions is now to be found in modern text-books[7] it will be unnecessary to go deeply into the matter here. Suffice it to say that of late it has come to be regarded as a phenomenon depending in some way or other on an interference with the normal action of the complement when an excess of amboceptor is added to a bacteriolytic serum. The phenomenon is not confined to bacteriolysis as it has also been observed in connexion with hæmolysis by hæmolytic sera and snake venoms. If we adopt the view that after a certain ratio of amboceptor to complement has been reached the addition of increasing quantities of amboceptor brings about a condition whereby for every increment of amboceptor a certain amount of amboceptor and complement are rendered incapable of acting as such, then most of the observed phenomena are capable of interpretation by physico-chemical laws. If to a bacteriolytic serum we add increasing multiples of amboceptor it is conceivable that we might gradually bring about a state of affairs whereby all the complement was inactivated, or, falling short of this, in which the available complement was present in such high dilution that only certain organisms could make use of it in that dilution. In other words, by increasing the quantity of amboceptor we may produce a state of affairs comparable to that induced by absorption experiments with a time factor. If this be so, then we might expect that the phenomenon of diversion of the complement is not confined to immune sera—that is to say, that diversion of the complement should be produced by adding to a serum unit (normal serum) steadily increasing quantities of the same serum heated. Further, if this be so it is obvious that by increasing the amount of immune body we are steadily increasing the dilution of the available complement, and so we could easily arrive at a stage where the dilution of the complement was such that the serum had ceased to be bactericidal for organisms requiring a relatively high concentration of complement but was still bactericidal for organisms requiring a much lower concentration of complement. We might thus obtain the false impression that this serum contained a series of specific complements instead of only one complement common to all. Experiments were conducted for the purpose of ascertaining (1) whether or not diversion of the complement can be induced in a normal serum by the addition of increasing quantities of the same serum heated; and (2) whether or not the diversion of the complement induced by adding increasing quantities of a heated immune serum is a specific action.

1. For the purpose of ascertaining whether or not diversion of the complement can be induced by the addition to a given quantity of normal serum increasing multiples of the same serum heated, the blood of a series of goats was tested. It was found, as might be expected, that considerable differences obtained between individual goats. In one goat, for example, it was found that the addition of an equal part of heated serum to the unheated serum produced marked loss of bactericidal power, whilst in other goats larger multiples were necessary before decrease of bactericidal action began to be apparent. In the earlier part of this paper I have noted that the goat which was used throughout these experiments only occasionally showed loss of bactericidal power when the quantity of amboceptor was trebled. The fact remains that diversion of the complement can be induced by the addition to a given unit of normal serum of increasing multiples of the same serum heated. In Table VII. an illustrative experiment is given.

TABLE VII.—*Showing the Diversion of the Complement by adding Heated Normal Serum.*

Dilutions of the 24 hours old living broth culture of bacillus typhosus employed as a test.	100 c.mm. N.G.S.* 24 hours old (Goat 6) and 100 c.mm. of a dilution of the typhoid culture.	100 c.mm. N.G.S. 24 hours old (Goat 6), 100 c.mm. H.N.G.S.† (Goat 6), and 100 c.mm. of a dilution of the typhoid culture.
Undiluted culture	Growth	Growth
2 fold dilution	,,	,,
5 ,, ,, ...	,,	,,
10 ,, ,, ...	Sterile	,,
25 ,, ,, ...	,,	,,
50 ,, ,, ...	,,	,,
100 ,, ,, ...	,,	,,
1,000 ,, ,, ...	,,	Sterile
10,000 ,, ,, ...	,,	,,
100,000 ,, ,, ...	,,	,,
1,000,000 ,, ,, ...	,,	,,

* Normal goat's serum. † Heated normal goat's serum.

2. To ascertain whether diversion of the complement is a specific action, two series of six tubes each were taken, the first two being small tubes of the type already described, the remaining four being ordinary sized test-tubes. I shall denote these two series as Series A and Series B respectively. Taking first Series A, the six tubes were charged as follows: Tube 1 received 50 cubic millimetres of sterile broth and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus; Tube 2, 50 cubic millimetres of normal goat's serum 24 hours old and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus; Tube 3, 50 cubic millimetres of normal goat's serum 24 hours old, 1500 cubic millimetres of normal salt, and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus; Tube 4, 50 cubic millimetres of normal goat's serum 24 hours old, 1500 cubic millimetres of heated normal goat's serum, and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus; Tube 5, 50 cubic millimetres of normal goat's serum 24 hours old, 1500 cubic

[7] Handbuch der Pathologischen Mikro-organismen (Kolle and Wassermann); Blood Immunity and Blood Relationship (Nuttall).

millimetres of heated typhoid immune serum, and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus; and Tube 6, 50 cubic millimetres of normal goat's serum 24 hours old, 1500 cubic millimetres of heated typhoid immune serum (cholera amboceptor free), and 50 cubic millimetres of a 1 in 100,000 dilution of a 24 hours broth culture of bacillus typhosus. The heated typhoid immune serum was obtained from a goat which had been immunised with the strain of bacillus typhosus used throughout these experiments. The words "cholera amboceptor free" mean that the cholera amboceptor had been removed from the heated typhoid immune serum. This was done as follows. The heated immune typhoid serum was digested for 24 hours at 37° C. with a dense sterilised emulsion of a 24 hours agar culture of cholera. The mixture was then centrifugalised and the clear fluid was pipetted off. With regard to Tubes 3, 4, 5, and 6, the mixture of normal goat's serum 24 hours old with normal salt, heated normal goat's serum, &c., was first made and the tubes were placed in the incubator for 15 minutes at 37° C., after which the 50 cubic millimetres of culture dilution were added to each tube. The tubes of Series B were prepared in precisely the same way with the exception that a 100,000-fold dilution of a 24 hours broth culture of cholera was used in place of a typhoid culture. All tubes of both series after having been prepared in the way stated were incubated at 37° C. for from 18 to 24 hours. At the end of that time 0·5 cubic centimetre of sterile broth was added to Tubes 1 and 2 of both series and six cubic centimetres of sterile broth to Tubes 3, 4, 5, and 6 of both series. All tubes were then incubated at 37° C. for 48 hours. In Table VIII. are set forth the constant results obtained throughout a long series of experiments extending over several months.

TABLE VIII.—*Showing the Constant Results obtained in a Long Series of Experiments.*

Cultures of the Bacillus Typhosus.

Dilution of the 24 hours old living broth culture of bacillus tyhosus employed as a test.	50 c.mm. of sterile broth and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S.* 24 hours old, and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. of normal salt, and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.N.G.S.† and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.T.I.S.‡ and 50 c.mm. of a dilution of the typhoid culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.T.I.S., cholera amboceptor free and 50 c.mm. of a dilution of the typhoid culture.
100,000 fold dilution	Growth	Sterile	Sterile	Growth	Growth	Growth

Cultures of the Spirillum Choleræ.

Dilution of the 24 hours old living broth culture of spirillum choleræ Asiaticæ employed as a test.	50 c.mm. of sterile broth and 50 c.mm. of a dilution of the cholera culture.	150 c.mm. N.G.S. 24 hours old and 50 c.mm. of a dilution of the cholera culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. of normal salt, and 50 c.mm. of a dilution of the cholera culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.N.G.S., and 50 c.mm. of a dilution of the cholera culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.T.I.S., and 50 c.mm. of a dilution of the cholera culture.	50 c.mm. N.G.S. 24 hours old, 1500 c.mm. H.T.I.S., cholera amboceptor free, and 50 c.mm. of a dilution of the cholera culture.
100,000 fold dilution	Growth	Sterile	Sterile	Sterile	Growth	Growth

* Normal goat's serum. † Heated normal goat's serum.
‡ Heated typhoid immune serum.

It will be seen that the addition in excess of heated normal goat's serum to a bacteriolytic mixture of the same serum unheated and a 100,000-fold dilution of a broth culture of typhoid or cholera was able to bring about diversion of the complement for typhoid but not for cholera. On substituting the heated serum of a goat immunised against typhoid fever we find, however, that the complement is diverted for both organisms. Further, when the cholera amboceptor has been removed from this heated immune typhoid serum the result is still the same and the complement is invariably diverted for both organisms. Whatever explanation we may adopt of the phenomenon of "Komplementablenkung" these experiments show that it is certainly not specific, and therefore lends no support to the theory of the existence of specific complements. On the contrary, if this phenomenon can be used as an argument at all in this discussion, then it is strongly confirmatory of the experiments described in the first portion of this paper. At the outset it was stated that Longcope had failed to take into account the phenomenon of diversion of the complement and he performed no controls showing the bactericidal power of the re-activating quantity of normal serum used. It will be remembered that in the case of bacillus typhosus it was stated by Longcope that one-twentieth of a cubic centimetre of unheated serum was necessary to re-activate a cubic centimetre of heated serum. In these experiments I have shown that if 1·5 cubic centimetres of heated normal serum be added to one-twentieth of a cubic centimetre of the same serum unheated the bactericidal action of the serum for typhoid is entirely removed, the bactericidal action for cholera remaining unaltered. As the blood which Longcope was using was taken from patients suffering from typhoid fever it is by no means unlikely that the amboceptor content of their serum had undergone increase. It is therefore highly probable that the phenomenon which he attributed to specificity of the complement was in reality due to diversion of the complement by excess of immune body. Referring once more to these experiments on complement diversion I would submit that they can all be explained by the assumptions already set forth.

Summary.—1. Normal goat's serum 24 hours old in contact with clot is comparable with normal human serum in so far as its bactericidal action on bacillus typhosus and the cholera vibrio is concerned. 2. If normal goat's serum, the amboceptor content of which has been artificially increased, be saturated with a sterilised typhoid emulsion and incubated at 37° C. the dead typhoid bacilli are capable of removing from the serum all the complement for both bacillus typhosus and the cholera vibrio, provided sufficient time is allowed for the action. 3. If the process of absorption be stopped at a stage when the serum has lost its bactericidal power for bacillus typhosus but still remains bactericidal for cholera and the action again started the freshly added dead typhoid bacilli are still capable of removing the complement for cholera. 4. Diversion of the complement in normal serum may be induced by the addition of increasing quantities of the same serum heated. 5. This may give the appearance of multiplicity of complements. 6. If diversion of the complement be induced by the addition of heated immune typhoid serum diversion of the complement takes place for both typhoid fever and cholera, even though the cholera amboceptor has been removed from the heated immune typhoid serum.

Conclusions.—1. Normal goat's serum contains only one complement for cholera and typhoid fever. 2. The union between organism, amboceptor, and complement is probably dependent on degrees of concentration and upon a time factor.

I wish to express my gratitude to Lieutenant-Colonel D. Semple, R.A.M.C., Director of the Central Research Institute of India, who placed the resources of his laboratory at my disposal for this work, and to Captain G. Lamb, I.M.S., Director of the Pasteur Institute of India, and Captain W. F. Harvey, I.M.S., Deputy Sanitary Commissioner, Punjab, for much invaluable advice, assistance, and criticism.

Kasauli, India.

WATER-SUPPLY OF TEIGNMOUTH.—A Local Government Board inquiry was recently held at Teignmouth, in Devonshire, to consider the application of the district council for sanction to borrow £21,830 for the purpose of obtaining a water-supply from the water-works of the Paignton district council, now in course of construction.

BUCKTHORN POISONING.—An inquest was held at Exeter on Nov. 10th concerning the death of an infant, aged two months. Evidence showed that the mother had given the baby some "buckthorn" after it had been vaccinated. It was stated that buckthorn was very commonly used in the neighbourhood. The jury returned a verdict of "Death from misadventure."

THE PATHOLOGY, AFFINITIES, AND TREATMENT OF SO-CALLED BLEEDING POLYPUS (DISCRETE ANGEIOMA) OF THE SEPTUM.

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(*Concluded from p. 1464.*)

Part II.—Pathological (*continued*).

2. *Subdivision of Types.*

Walliczek (*16*) distinguishes three principal types or sub-species of bleeding polypus, and these are linked together by many intermediary combinations. In the table published last week are included many excellent examples of the commoner forms, as well as certain outlying members of the group, and they range from the simple granuloma, arising apparently from some infective process—e.g., Cases 9 and 16—to the soft angeio-fibroma, the nearly pure fibro-angeioma, and the cavernoma. Owing, however, to the complexity resulting from the intermediate members, this subdivision by Walliczek and others cannot be said to rest upon a strictly scientific foundation; it is, however, convenient. These types of discrete septal angeioma, as already foreshadowed, are (1) the granuloma type, mainly constituted of granulation tissue; (2) the fibromatous or connective-tissue type, in which I recognise two sub-varieties, the loose textured or œdematous, and the close textured fibro-angeioma; (3) the cavernomatous or purely vascular type, in which the proportion of spongy angeiomatous tissue far exceeds any other. The term teleangeiectoma[1] is freely used abroad in connexion with this type, but as the capillary character of the tissue is not well established that of cavernoma is here selected as more etymologically correct, though still falling short of actual precision.

Pathological relationship.—The difficulties that beset the rhinologist in an attempt to specify the true position of bleeding polypus in oncological classifications are rendered more apparent by a setting forth of the principal relationships that are borne by the various members of the group to other neoplasms. It will be convenient to consider, first, the very evident affinities with benign growths and, secondly, the moot question of relationship to malignant tumours.

The *granuloma type* is, in my experience, certainly one of the least defined, and considered by high authorities to lie at the foundation of all. Of the 16 cases which I have microscopically reported upon in the table, 12 are described as containing a proportion of granulation tissue, the significance of which is more fully discussed at the conclusion of this paper. In so far, however, as the granulation tissue so commonly present can be considered to share in the designation of the type of the angeioma in which it is found, it may be mentioned as reflecting very markedly the characters of young connective tissue growths in which developing capillaries and blood spaces, fibroblasts, and leucocytes are the main features. In Vol. VII. of the Proceedings of the Laryngological Society of London will be found a description by the writer of a soft, intensely vascular naso-pharyngeal tumour recurring after removal and feebly suggesting a diagnosis of sarcoma though presenting no other very evident signs of malignancy. Microscopically its appearance at once recalled the granulomatous areas of a discrete angeioma—œdematous stroma basis, numberless small blood channels, and the rest. A similar species of granulomatous angeioma occurs as a tumour formation in the maxillary antrum. On the other hand, it is important to note that in granulation polypi of the nasal or accessory cavities, especially of the frontal which are largely composed of lymphoid tissue, but slight structural relationship to bleeding polypus prevails owing to absence in them of angeiomatous tissue. I may state in this connexion that it is my belief that a study of aural polypi in association with bleeding polypus of the septum throws considerable light upon the pathology of the latter and tends to show that the nasal neoplasms have to some extent their counterpart in the aural, the starting point in either case being usually an inflammatory tissue formation. Moos and Steinbrügge discovered amongst 100 aural polypi 55 granulation tumours, *27 angeio-fibromas*, 14 fibromas, and four myxomas.[2]

The connective-tissue type as represented in the œdematous fibro-angeioma seems to have suggested to a large number of observers so close an affinity to the papillary fibromas of the nasal mucosa—the soft papillomas of Hopmann—that, with Réthi, Walsham, and others, they fail to see a sufficient distinction to warrant a special place in rhinology for this form of bleeding polypus. To me the mere segregation of the characteristic angeiomatous clusters or channels by the accident of œdematous infiltration of the intervening stroma does not render obvious any such affinity. True myxomatous tissue I have not yet observed. Selecting at random a microscopic section of a papillary fibroma (mucous hypertrophy) of the septum removed by myself, I find the following distinctive features, to which I invite comparison with the descriptions of loose textured fibro-angeiomas in the tables. Beneath a deep fringe of ciliated epithelium a hyaloid basement membrane; in a loose œdematous stroma a profusion of lymphoid cells almost constituting lymphoid tissue, Fraenkel's bodies; capillary arterioles exhibiting *well-marked transverse and longitudinal fibre cells;* muciparous glands and erectile sinuses; many spaces in the stroma filled with œdematous material. I have never seen in any of the published descriptions of bleeding polypus an allusion to true arterial capillaries, though Heymann found a vessel "with walls thick enough for an artery" (*7*) and Krieg speaks of gland structure near the pedicle in one of his cases but being the only instance on record there may possibly be some error here. On the other hand, in the anomalous group of inferior and middle turbinal angeiomas described by Schwäger, Jurasz, Seifert, and Kahn (*11a*) both glands and epithelial intrusions were present, and through these some link with the papillary fibromas may be recognised. I have seen no examples of these turbinal fibroangeiomas.

Passing now to the close-textured forms of the connective-tissue type, the more genuine fibro-angeioma of the septum, we notice an important and interesting relationship with the diffuse angeio-fibroma of firm texture of the naso-pharynx, though I am inclined to regard the proportion of vessels greater as a rule in the septal angeioma, on which account I reverse the order of the terms, angeio-fibroma more correctly defining the naso-pharyngeal growth. In a hitherto unrecorded specimen of bleeding polypus kindly submitted to me by Mr. H. Betham Robinson, and described in the table (No. 13), the histological similarity with Dr. Herbert Tilley's case of extensive angeio-fibroma of the naso-pharynx[3] is most remarkable, the former being in fact a nearly pure fibro-angeioma only of a more delicate texture. When investigating the relationships of the fibro-vascular combination in bleeding polypus one is at once reminded of Roe's classical case of *diffuse* nasal angeioma upon which he wrote his paper (*2*) and formulated a table that included three or four examples of the discrete bodies which afterwards came to be known as bleeding polypus of the septum. There is no difficulty in singling these out from the remaining cases in his collection; Roe's angeioma was attached to one side of the roof of the nasal cavity, superior and middle turbinals, and septum. After removal, the recurrence which grew from the septum only was said to exhibit a transformation from angeioma to endothelioma and later again to myxomatous angeio-sarcoma; I should suggest that this was probably a hæmangeio-sarcoma from the first. The likelihood of its being a malignant transformation has been adversely discussed by Norval H. Pearce in the American Laryngological Society (*16*), though accepted as a fact by Hasslauer; it is commonly stated that certain naso-pharyngeal angeiomas become more and more sarcomatous after each operation. In the same category with the fibro-angeiomas, but exhibiting affinities of a different character, was my case, hitherto unrecorded, and represented in Fig. 3 (No. 1). Like that seen in Fig. 2 it was attached to the ala of the vestibule near the floor; the microscopic section has been more than once diagnosed as a sarcoma. Though partly cavernous in structure the parenchyma of the growth is a

[1] More properly telangeiectoma (Gr., τελος, the end).

[2] Brühl: Archiv für Otologie, Band xxx., 1901.

[3] Proceedings of the Laryngological Society of London, vol. x.

form of cellulo-capillary tissue in which the inter-capillary cells predominate and are jumbled together without order; the nuclei of all the cells are large and of an oval, tending to fusiform, shape; they are particularly crowded in the walls of the capillaries. Its chief relationship is towards the soft fibromas of the respiratory tract, the word "soft" here implying an absence of coarse fibrous tissue. Another example (from the septum) is seen in Fig. 10. These young fibromas are apt to resemble sarcoma and are often mistaken for it but I have not yet met with a nasal case that offered much real difficulty in diagnosis; one must always be prepared for an ambiguous appearance in the minute structure of tumour formations of innocent behaviour that arise from the vestibular tissues. The cavernous, telangiectatic or vascular tissue type embraces many varieties of angeiomatous tissue and the figures accompanying this paper illustrate some of the forms it assumes. The relationship to true nævi, telangiectatic and cavernous, of other parts of the body is somewhat obscure and I shall presently have occasion to remark upon certain distinctions between one and the other. Hasslauer has collected seven cases of what he regards as cavernous angeioma of the septum and other writers, chiefly American, recognise the existence of true nasal angeioma. The late W. J. Walsham[4] described a pure non-pulsating angeioma of the septum and a pulsating angeioma or arterial nævus, the former broadly pedunculated, and the latter sessile. Both kinds he believed to be exceedingly rare, and he quoted Cobb's (*10*) statistical statement that out of 7429 nasal cases examined at the Massachusetts Hospital, only one example of pure angeioma was recorded. This was Cobb's case, but judging, however, from Dr. Whitney's somewhat meagre pathological report upon it—which ran as follows: "Growth with large vascular sinuses with more or less round cells about—cavernous angeioma"—this was apparently an average case of bleeding polypus of the septum. Walsham's naked-eye description of his two forms of angeioma, with the exception of pulsation, virtually tallies with that of Cobb's case. He does not, however, use the term "bleeding polypus" in his work and suspects that nearly all the growths called nasal angeiomata by authors were either myxomatous growths containing numerous blood-vessels, or they contained sarcomatous elements. This is precisely the conclusion which I am anxious to negative. Walsham, in fact, does not appear to have been acquainted with the labours of the Germans. The occurrence of pulsation in a bleeding polypus must be extremely unusual. Bland-Sutton states that when an angeioma consists entirely of irregular blood-containing spaces, two or more vessels, sometimes of considerable size, convey blood to it from an adjacent artery.[5] It would be difficult in the case of these small nasal tumours to verify the presence of such vessels, but they never consist entirely of large blood spaces. The same author speaks of the occasional "disappearance of nævi spontaneously, though they more often increase in size or become converted into cavernous nævi."[6] I am not aware of any clinical report of a pulsating angeioma of the nasal septum with the exception of Verneuil's (*1*). Granting this case to be well authenticated, we have in it, perhaps, the nearest approach to a true angeioma affecting the nasal mucous membrane that can be found in literature, but unfortunately we have no pathological report. It occurred in a male, aged 52 years, and took the form of a round, dark-red, sessile swelling, of the size of a cherry-stone, pulsating synchronously with the heart and growing on the left side of the septal cartilage. There was a history of severe epistaxis of ten years' standing. Several other small erectile patches were found, in various parts of the body—e.g., the right temple, soft palate, &c. On subsequent examination the growth was no longer found in the left fossa but an exactly similar one was discovered on the right side of the septum. It was eventually got rid of by repeated cauterisations, but the patient is said to have died extremely cachectic four years later. This case seems to have served many authors of text-books as a model for descriptions of nasal angeioma: certainly Hasslauer includes it amongst his 55 cases of bleeding polypus.

The indefinite organisation and disposition of the vascular element in bleeding polypus of the septum render the establishment of a common anatomical basis between it and the analogous structures of cavernous nævi of the skin or cavernous angeioma of the liver and other organs somewhat obscure. It is perhaps on this account that the nasal cavities are rarely or never cited by pathologists as seats of angeiomatous tumours. The apparent similarity between the partial septa depicted in the blood sinus below and to the left in Fig. 2 and the trabeculæ of cavernoma of the liver, which are internal prolongations from the capsule of the tumour, is dissipated on careful inspection. In the angeiomatous growths of the *pharynx* and *larynx*, on the other hand, a purer homology with the capillary (tel-angiectatic) and cavernous variety of nævi is more easily traceable. Angeiomatous neoplasms in the vicinity of the glottis, which have all the naked eye appearances of true cavernous nævi, are occasionally seen but those so far exhibited have not been removed by operation. Dr. Percy Kidd has kindly forwarded me a section of the lobulated, dark-red, raspberry-like angeioma (cavernoma) which he removed from the larynx and described in 1888.[7] The spaces are large and circular and occupy nearly the whole of the growth, recalling Dr. Kelly's septal case (Figs. 6 and 7) but on a larger scale. Another example of angeioma of the larynx is shown in Fig. 5; it consists of a plexus of dilated capillaries (tele-angiectoma) in a loose connective-tissue basis; the section is longitudinal and includes the pedicle. Thus in the histologically related tumours of the larynx a similar variation of type with intermediate forms confronts the pathologist. Other varieties of the vascular group are described. Thus Seifert and Kahn (*11a*) define an angeioma the characters of which do not differ essentially from the turbinal angeiomas of Schwäger. The blood spaces are described as of much the usual character but arterial and venous channels are differentiated and glands are also spoken of. Amongst Scheier and Heymann's were certain cases which they distinguished as teleangiectatic lymphangeioma characterised by lymph vessels and dilated lymph spaces. Krieg also includes a lymphangeioma in his series but when in cases under my own observation I have been inclined to diagnose a lymphangeioma, I have always found it difficult to get that diagnosis corroborated by competent authorities or to obtain confirmation of the same diagnosis when such has been reported.

PART III.—THE QUESTION OF AFFINITY WITH MALIGNANT TUMOURS.

1. *Partly from the Clinical Aspect.*

I have reserved for separate consideration the question of relationship to malignancy. Owing to the fact that the naked-eye diagnosis of bleeding polypus of the septum presents so little difficulty to the clinician save under rare exceptions, the responsibility of associating this growth with one or other of the mesoblastic malignant tumours has hitherto rested with the pathologist on the evidence of the microscopical characters, and yet I am not aware of any recorded instance in which an unfavourable histological report has been actually supported by clinical facts. As this question is of the utmost importance I shall here cite a case which was exceptional in certain respects but especially as regards the clinical appearance. (See also No. 13.) I refer to an atypical case of bleeding polypus—No. 7 in the table—for the notes of which I am indebted to the kindness of Dr. A. Brown Kelly of Glasgow.

The patient was a male, aged 20 years, who had been habitually engaged in pugilistic encounters but had latterly received an exceptional pounding on the nose. Externally the organ was much disfigured, the superior lateral cartilage of the right side being pressed outwards, so that the upper edge formed a prominent ridge. The right nostril was completely obstructed by a smooth, purplish, readily bleeding, fleshy mass which sprang from the septum anteriorly. The opposite side was almost blocked by the greatly deflected septum. Several enlarged glands were apparent below the angle of the right lower jaw, epistaxis had existed for four months, partial obstruction for three months, and complete obstruction for one month. A piece removed for examination gave rise to very severe hæmorrhage. The man disappeared from observation but on his turning up three years later no trace of the growth was visible. The microscopical examination of the fragment showed the growth to be inflammatory and highly cellular, it contained abundance of leucocytes and plasma cells, and was inclosed by a capsule formed chiefly of organised blood clot. Taking into consideration the

[4] Nasal Obstruction, 1898.
[5] Tumours, Innocent and Malignant, p. 179.
[6] Ibid.
[7] Brit. Med. Jour., March 17th, 1888.

appearance, vascularity, seat, rate of development, deformity, and indirect involvement of the glands, an inclination was shown to regard the growth as sarcomatous. As, however already indicated, there were no sarcomatous cells and the growth was an atypical granulomatous bleeding polypus. I need not insist how important to the patient and his medical adviser an accurate microscopical diagnosis must be; it is no light matter that the disquieting effect of equivocation upon the grave question of malignancy should be obviated whenever possible. When sarcomatous tissue has been reported in a case falling under the general description of bleeding polypus of the septum the statement has, in my belief, been too often accepted by subsequent writers and tabulators without sufficient allowance for the possibility of a misinterpretation of the microscopical appearances. Even in the case of far more equivocal tissue structure than bleeding polypus, say of the soft fibromas, the cautious pathologist knows that good clinical evidence is often invaluable, his diagnosis being in such a case partly dependent on clinical observation. On these and other grounds I feel justified in asserting that no septal growth having the naked-eye characters of bleeding polypus or discrete septal angeioma has been satisfactorily demonstrated to be sarcomatous. I am, however, not in want of support in making this declaration. Langerhaus (*6*), in his report upon Schadewaldt's cases, thus concludes: "The absence of all cells which might direct suspicion to sarcoma proves that it is a non-malignant new formation," and this embodies the views of Schadewaldt who quotes it. Other writers might be cited to the same effect, as, e.g., Walliczek (*24*), who writes: "In spite of the manifold combinations that occur between the three types these tumours are always benign."[8] Heymann (*18a*) says many of the pedunculated tumours of the septum described as myxo-sarcoma belong to bleeding polypus and stand much nearer to granulation tumours than to genuine sarcoma. Yet in opposition to these very definite statements there are certain reports upon individual cases which have considerably influenced subsequent writers; the following may be quoted as examples. Baumgarten[9] reported a case as partly myxoma, partly myxosarcoma; Polynack[10] reported a case of angeio-sarcoma displaying large and small blood spaces, the intermediate substance showing characteristic sarcoma formation; Dausac found in one specimen sarcoma teleangiectoides and in another endothelial angeio-sarcoma; and Sendziak recorded a case of angeioma cavernosum sarcomatodes.

Roth (*24*) states that his case agrees most with what Paltauf designates as angeio-sarcoma, but the latter seems to be an unhappily chosen term denoting only an atypical angeioma, its application not being obvious. Nevertheless, Roth in his recent paper concludes from the above reports (which he quotes) "that amongst the published cases of bleeding polypus of the septum there are either malignant tumours, or at least some suspected as such, and hence the confusion is the greater"; furthermore, Casselberry tells us, on the strength of Sendziak's evidence, that sarcoma constitutes one of the forms of bleeding polypus of the septum. As Sendziak's paper (*12*) is fully translated in the *Journal of Laryngology* and as it is the first instance I am aware of in which the expression "sarcomatoid" occurs I shall quote it rather more at length. The patient was a young man, aged 34 years, who was extremely anæmic from hæmorrhage but the clinical behaviour of the growth in his nose exhibited no evidence of malignancy. The following report was made upon it by Dr. Miklanewski: "Very numerous vessels filled with blood, they were much distended and separated from each other by thin partitions (trabeculæ); the whole growth reminded one very much of the structure of a sponge. Each partition was formed of fibrous tissue with numerous fusiform cells and also round ones, especially around the blood vessels. In those places where there were fewer vessels and where they were less regularly grouped in one part of the growth, the fibrous tissue contained more cells, nodules of different sizes, long, slightly coloured, fusiform, larger and smaller, oval, round, &c. In general their number was much more considerable than in normal stroma, besides in many places there were considerable agglomerations of them. These places were of an undoubtedly suspicious character—namely, sarcomatous. In the above case we had to deal with an exceedingly rare case—viz., angeioma cavernosum sarcomatodes." This diagnosis was confirmed by Professor Brodowski. Sendziak concludes from it that "there existed evidence of malignant sarcoma in a benign (polypus) tumour of the nose" and he tells us that amongst others Kafemann (*12*)[11] has drawn attention to such an occurrence, although he is fully alive to the usually innocent character of bleeding polypus. With all deference to the distinguished reporters, however, I would submit that this description tallies very well with that of an average case of bleeding polypus; take for instance that given by Norval H. Pearce, who thus writes of his own (*17*): "Equally distributed through the ground substance are large spindle-shaped cells having large deeply stained nuclei which have been cut in all directions showing their interwoven arrangement. The tumour is highly vascularised and in the centre are numerous cavernous spaces lined by flat endothelial cells." The diagnosis made here by Pearce was "neither sarcoma nor angeioma, but teleangiectoma." In other instances within my own knowledge a diagnosis of sarcoma, angeio-sarcoma, and perivascular endothelioma or perithelioma has respectively been made.

2. *Chiefly from the Point of View of Microscopical Appearances.*

If I have succeeded in making clear my descriptions of the histological features of bleeding polypi as a whole I need only touch lightly upon the differential diagnosis of these neoplasms from malignant growths, the distinctive features of which are so amply described and illustrated in the text-books. The groups to which reference will be made are the sarcomata and their allies the endotheliomata, with which, as already mentioned, the innocent septal angeioma has more than once been confounded. Concerning the endotheliomata, though our knowledge of them is incomplete, I may perhaps be allowed to recall the fact that for a long time imperfectly separated from alveolar sarcoma, they have comparatively recently received their present name and come to be more closely identified with angeio-sarcoma. In other words, though often resembling in appearance carcinoma, an epiblastic growth for which probably they had often been mistaken, their cells, mesoblastic in character, are considered to be endothelial and therefore to spring by proliferation from the wall of a lymph or blood-channel. The result of this impression is that angeio-sarcoma as a term has acquired a collective sense and comprises both the lymphangeio-sarcoma and hæmangeio-sarcoma, the former of which includes the commoner and more typical endotheliomata which, therefore, when receiving their more concise designation, fall under the lymphangeio-sarcoma group. As regards hæmangeio-sarcoma owing to the fact that the sarcomatous process starting from the endothelium may proceed towards the lumen or away from it two sub-species of endothelioma are distinguished, that form which shows the persistance of vascular lumina receiving the distinctive title of peri-vascular endothelioma or *perithelioma*. Descriptions and figures of this growth will be found in Borst's Lehrbuch, in the last edition of Ziegler, and in Hansemann (p. 165).[12] The application of all this to my subject resides in the fact that the meaning and intent of cell proliferation in and around small vessels is often difficult to interpret; sometimes it assumes a truly malignant character by infiltrating the surrounding tissues, at other times the process confines itself to simple proliferation, although possibly the difference may be only one of degree. Even the endotheliomata are said to be not necessarily malignant; Dr. W. S. Lazarus-Barlow, in an interesting letter to me, writes in this connexion that in his view "the group of endotheliomata has widened considerably during the last three years, and he is not sure if all the endotheliomata are malignant, using that word in the common way." We are aware also that certain endotheliomata affecting the brain membranes, though causing death by pressure, do not infiltrate the brain substance and are not in a true sense malignant. On the continent—at all events, in the German provinces—the term endothelioma like epithelioma being used in its histological sense, does not necessarily bear a malignant signification. Roth, in discussing the place of bleeding polypi amongst hæm- and lymph-angeiomata owing to certain

[8] Monatschrift für Ohrenheilkunde, 1897.

[9] Sitzungberichte der Gesellschaft der Ungarischen Ohrenärzte, March, 1898.

[10] Ibid., June, 1902.

[11] Revue Internationale de Laryngologie, October, 1895.

[12] See also Lazarus-Barlow's Special Pathology, 1904.

affinities with these growths, and quoting Borst, tells us that Amann and Maurer apply the term intravascular endothelioma, Borrmann capillary endothelioma, and Kolacsek angeio-sarcoma, to angeiomatous tumours characterised by an extraordinary increase of vessel development lined by an enlarged endothelium. Borst adopts the term intravascular endothelioma or endothelioma simplex, and describes "actual columns of endothelial cells inside the capillaries as determining the character of these tumours." Roth, however, denies the existence of this endothelial proliferation in his specimen,[13] yet it does not seem that Borst and his *confrères* have in view malignant endothelioma in our interpretation of the term. I have the advantage of knowing that the nature and degree of the cell proliferation in the hæm- or lymph-endotheliomata that Dr. Lazarus-Barlow would be most inclined to exonerate from the stigma of malignancy differ widely from what is seen in the most approximate example of cell proliferation that I have been able to show him in a "bleeding polypus." Neither that gentleman nor Mr. S. G. Shattock has had the least difficulty in agreeing with me as to the distinction between any case of the latter that had been unfavourably reported upon and the least malignant endo- or peri-thelioma. The view given above agrees with that of Dr. Lazarus-Barlow as set forth in his "Special Pathology," 1904. In the lecture delivered by him at the Royal Free Hospital on Nov. 8th, and to be published in the archives of the Middlesex Hospital early in 1906, Dr. Lazarus-Barlow distinguished the endotheliomata from the angeio-sarcomata. Intravascular endothelial proliferation, such as described by Borst, I, like Roth, have not been able to demonstrate in any septal angeioma to my own satisfaction, though an appearance strongly suggestive of this is sometimes occasioned by a general crowding of the enlarged endothelial cells. Extravascular proliferation is, however, of common occurrence and is best studied in isolated situations such as was shown in Fig. 8, which appeared in the first division of this paper. The proliferation is here seen to be of a simple character and although manifestly thrown off from the endothelial lining may be regarded as connective tissue or *endothelioid* cell proliferation of an innocent character. In a pathological sense, therefore, it is peritheliomatous, and though under a low power (see Fig. 4, which was selected from a distant area of the same section) the clusters resemble the cell-mantles of Ziegler and Borst[14] the likeness to a malignant perithelioma is close, it is largely dispelled by higher magnification. We know, furthermore, how in granulation tissue a young capillary vessel is commonly seen to be supported by connective-tissue cells and Dr. Lazarus-Barlow states that often in capillary nævi the endothelial cells proliferate and appear to become converted into a tissue which is similar to ordinary connective tissue.[15]

Having discussed briefly the cell elements of the angeiomatous tissue in bleeding polypus it remains to specify some points of difference between the cell aggregations of the latter and the cell masses of the malignant family of sarcomata. It is mainly a distinction between locally limited and hence innocent endothelial or connective tissue proliferation in the one case and rapid proliferation *with infiltration* in the other. In the confined space of a discrete tumour-formation, such as a bleeding polypus, we should scarcely expect to find malignant infiltration into its tissues. The cellulo-capillary aggregations of the innocent growth I so designate because by careful inspection they can be resolved without difficulty into what is mainly a highly cellular capillo-vascular tissue. The minute channels that enter into their composition are rarely formed of more than two or three endothelial cells in apposition, and in a given section they are cut at various planes and angles and vary in appearance owing to their tortuous course. Growth and proliferation outside the walls of the capillaries within the confined space also tend to cause compression, so that many of the lumina are collapsed. In denser areas where the cells are more abundant their heterogeneous disposition in relation to each other serves as a valuable mark of distinction from malignant cell masses, so long as the magnification is not too high. They are not placed several abreast in juxtaposition, flat-wise, in one plane, an arrangement suggesting a mosaic. Except in the fusiform or spindle-shaped variety the cells of the angeioma are often recognisable by their nuclei only save in fresh scrapings, whereas in sarcoma the polygonal homogeneous cell body, inclosing a large dark nucleus, and merging imperceptibly into a homogeneous cement-substance, is a common appearance. The nuclei of the endothelial and inter-capillary cells are often abnormally large in the angeiomatous tissue (as is well seen in Fig. 12 between the chains of leucocytes), but they are nevertheless smaller than those of an endothelioma or small-cell sarcoma; lastly, the cellulo-capillary clusters are not walled off from each other by protective strands of fibrous tissue, engendered in malignant growths as an attempt by nature to resist further incursion from infiltration. Figs. 14 and 15 are introduced in order better to

FIG. 14.

Isolated areas of endothelioid cell proliferation (a few lymphocytes are interspersed). From case No. 10. (Magnification 125 diameters.)

FIG. 15.

Isolated cell masses from an endothelioma of the naso-pharynx (peri- and endothelioma). (Magnification 125 diameters.)

illustrate these facts. In Fig. 14 a magnification of a cell-cluster from the same case as Fig. 9 shows well the diversity between the disposition of the cells in the angeioma and that in a perithelioma (Fig. 15). In the latter the ill-defined vessel in the cell mass is just perceptible, the proliferated endotheliomatous cells having the disposition described above. In Fig. 14 there is a heterogeneous arrangement of the cells and the density of the cluster is considerably augmented by the interspersion of leucocytes. The cell nuclei are not more than half as large and the character of the surrounding stroma is in strong contrast with that in Fig. 15. Whether under a low power we take a general survey of the tissue, or under higher magnification scrutinise the cell structures individually, we find ample points of differential diagnosis between the septal angeiomas and malignant growths, however difficult the diagnosis from malignancy may be in other growths in various regions of the body. I have dwelt especially upon a few only of these points; a perusal of the magnificent coloured drawings in Borst's Lehrbuch and a careful examination of microscopical sections will render obvious many more.

PART IV.—GENERAL PATHOLOGICAL CONSIDERATIONS AND CONCLUSION.

It is in the pathology of these growths that so much interest has been excited not only on account of their strange variability in point of histological detail but, as I

[13] Loc. cit., p. 529.
[14] See Borst's Tumours, vol. i., 1902.
[15] General Pathology, p. 167.

hope to have shown, on account, too, of their structural affinities to other morbid growths of still greater importance affecting the upper respiratory tract. In the unsettled state of many questions at present surrounding the subject, and in the absence of more precise etiological data, opinions are still divided as to whether a genuine and satisfactory species can be formulated under the generic title, Bleeding Polypus of the Septum. I think myself that a sufficient number of essential characters unite the *large majority* of recorded cases to render this possible and I am glad to find that Roth favours this view. Difficulties will always present themselves in the classification of atypical examples and we are hindered by a want of definite information as to a sequential relationship between the varieties which, from our knowledge of tissue developments, we may assume to exist. The most comprehensive table yet published is Hasslauer's (*18*), enumerating 55 cases, but this is capable of considerable augmentation by other cases that have escaped his notice as well as by more recent records. Such a collection of angeiomatous neoplasms under a common title argues rather forcibly in favour of the establishment of a species, at least pending further elaboration. Hasslauer's list absorbs two from my own table—namely, Dr. StClair Thomson's and Dr. Scanes Spicer's first cases, and out of the 55, 22 are tabulated as bleeding polypus of the septum simply, with no other morphological qualification. Amongst the latter are included a case of Dr. Bond's but not Dr. Scanes Spicer's nor Dr. StClair Thomson's (*14*) cases, which have an equal claim with the former to be so included. The remainder in Hasslauer's list, with one exception, are described as some form of benign angeioma, examples of which it will be instructive here to quote. Fibro-angeioma cavernosum—Wallicżek (*16*). Angeioma cavernosum—Brieger. Fibroma teleangiectodes—Lubliner (*13*). Myxoma teleangiectatica—Luc (*5*). Angeioma cavernosum verum—Biehl. Fibroma molle teleangiectodes—Baurowicz. Angeioma—Jurasz and others. Cavernous tumour—Strazza (*11*). Myxo-angeioma—Garel (*9*); Egger. Fibro-angeioma—Freudenthal and others. Fibro-cartilaginous cellular taleangiectatic tumour—Noquet. Erectile tumour—Mackenzie (Verneuil). The exception alluded to is a pendulous fibroma (Suchannek's). If we add to Hasslauer's 55 cases seven of Krieg's, two of Gerber's, five from other German sources, and 14 from my table we arrive at a total of some 83 cases comprisable under one title, apart from the number—doubtless very considerable—that have failed to be recorded. Hasslauer regarded the atypical case above mentioned as worthy of inclusion in his list, whilst virtuously excluding all such as were deemed from their pathological reports to be tainted with malignancy; he also excludes growths morphologically indistinguishable which have been removed from the floor or outer wall of the vestibule. Nevertheless certain German observers refuse to give these growths a special place in rhinology. Fraenkel and Alexander (*18*), Chiari (*24*), Grünwald, and Siebenmann, who, I believe, regard them as granulomata, may be presumably cited as of the same opinion.

As already stated under the etiological section these growths may be supposed to commence existence as inflammatory formations due in a certain proportion of cases to either a traumatism or some undefined source of irritation. Upon a primary and possibly granulomatous substratum there may be assumed to follow, if the tumour is suffered to remain long enough *in situ*, certain changes, vascular obliteration by cross fibrous structure normal to the healing process failing to supervene. From the formative cells originally given off by the endothelial walls of the basal capillaries a stroma of fibrillary connective tissue is developed which may ultimately become fibromatous and œdematous but always angeiomatous in various degrees and combinations, spongy angeiomatous tissue being possibly a later transformation by dilatation either of the capillaries or, perhaps, of the loose œdematous connective tissue spaces. Dilated capillaries are a common feature in all granulation tissue. The factor determining each peculiar form of degeneration in the walls of the capillaries and blood spaces of the fundamental tissue is matter for conjecture; rapid proliferation of the newly formed vascular tissue somewhat like that occurring in capillary nævus seems to become the characteristic of one case, whereas large blood-cavity formation is conspicuous in another. We may infer that the latter is an early development when occurring in the pedicle or base. At a much later stage, instead of by simple dilatation, many of the large irregular sinuses appear to have been formed by the confluence of neighbouring spaces whose attenuated walls have given way before the force or wear and tear of the blood current. The supposition that granulomatous tissue always forms the substructure upon which the angeiomatous growth is subsequently developed receives rather scanty support from an examination of the basal structures or from the older portions more remote from the pedicle in many examples. It is in the peripheral and presumably more recent areas of growth that the granulomatous tissue is commonly observed, and, as the histological descriptions in the table show, this tissue is almost invariably in association with a surface in which the epithelium has disappeared or has been replaced by blood plasma or fibrinous material. I have had some interesting conversation with Mr. Shattock as to the correct interpretation of this fact and we have come to the conclusion that the granulation tissue is the result of inflammation excited by an infective process attacking a portion of the circumference. An invasion by micro-organisms through an abrasion might excite inflammatory reaction in the parts beneath, giving rise to the coagulable exudation containing leucocytes of various kinds so commonly observed. This effusion would push up the epithelium and cause the shedding or desquamation of its component cells. Some explanation is thus afforded of the not infrequent occurrence of ulceration and of the peculiar mixing up of coagulum and epithelium such as is described in Case 14, in which epithelial cells or leucocytes containing micro-organisms are visible *in situ*. The loosened epithelial cells seem to be disintegrated and absorbed by the polymorphonuclear leucocytes (or phagocytes) of the fibrinous exudation in which they are enveloped. The indefinite specimen (Case 9) shows evidence of a history of causation by some such infective process following injury in a subject whose surroundings would be favourable. Whether it is owing to the occurrence of these sites of inflammatory reaction that the title of "granuloma" has been suggested as a suitable denomination for the entire series I am not aware. As regards the various forms of circumvascular cell proliferation, which with the dilated vessels is so characteristic a feature of the commonest types of bleeding polypus and which serve to distinguish them so readily from the non-angeiomatous nasal growths, there seems no plausible *raison d'être*. I have been inclined to regard the perisinuous proliferations as a kind of abortive attempt to choke up and obliterate the spaces, the fibro-angeiomatous meshwork being a possible late result, but no trace of a completed fabric of scar tissue is anywhere to be seen, and in any case the cellulo-capillary agglomerations would still remain unaccounted for.

In concluding this paper I have to regret the non-elucidation of many absorbing problems that are broached within it but I have written for the rhinologist and the practitioner interested in rhinal pathology rather than for the professed pathologist. Nevertheless, for the future advancement of the subject I would offer the following suggestions. Firstly, in every case of bleeding polypus to examine the patient carefully for evidence of rhinitis sicca or any trace of inflammatory processes in the septum, failing which to inquire for any possible source of local irritation or traumatism or history of simple ulceration, epistaxis, or perforation. To look for the presence of pulsation and carefully note the colour of the surface, whether bright or dark red—indicating arterial or venous—blood-supply.

In removing the growth it is desirable to preserve as much of the pedicle as possible, if such there be, or at any rate of the base. In the preparation for the microscope directions should be given to harden the specimen gradually in spirit, completing in pure alcohol and avoiding formalin. Embedding in paraffin has many advantages but many specimens are ruined by over-heating or "cooking," and the damage thus caused by shrinkage of the tissues and cell elements is irreparable. The principal section should be made vertical to the pedicle or base; any spare material—i.e., the unused half—should be cut in the opposite plane. As regards the stains to be used, hæmatoxyline and eosine are, in my estimation, more suitable than van Giessen for this particular tissue, they are familiar to everybody and bring out all essential points extremely well. On the whole, it is, perhaps, better to employ both these stains in two separate sections respectively. When ulceration or fibrinous exudation is present a separate section may be stained for micro-organisms.

Finally, the pleasing duty remains of expressing my

obligations to those gentlemen who have kindly placed at my disposal their microscopical collections for the study of various neoplasms, innocent and malignant, bearing upon the subject of this paper. To Mr. Shattock and Dr. Lazarus-Barlow for this facility, and for the enjoyment of many discussions upon the histology of bleeding polypus of the septum and its allies, my thanks are especially due. The latter gentleman has kindly looked over the proofs with me. I wish also to include the names of Dr. H. D. Rolleston and Dr. R. S. Trevor of St. George's Hospital for access to their valuable collections. To those members of the Laryngological Society of London who have contributed specimens to the cabinet of the society or have lent slides to me from their private collections for examination and for reproduction by the artist I wish to accord my warmest thanks; their names are duly recorded in connexion with their cases in the table, and the illustrations in the text. With regard to these, the excellence of the artist's (Mr. Taylor's) work speaks for itself, and I wish to express my indebtedness to the Editors of THE LANCET for their profuse liberality in displaying them.

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According to Hasslauer, Lange has the credit for the earliest description of these growths, "though Tankyroglous (Monatsschrift für Ohrenheilkunde, 1887) has described one but not interpreted as such." (5) Luc: Internat-onal Centralblatt für Laryngologie, 1892, S. 9; a description of a telangiectatic myxangioma. (6) Schadewaldt: Archiv für Laryngologie, 1893, Band I. Three cases, here first designated "Blutende Septum Polyp," described in a paper before the Laryngological Society at Berlin, July 14th, 1893. (7) Alexander: Archiv für Laryngologie, Band I., 1893. Alexander, Scheier, and Heymann, and Schwäger each published cases of Bleeding Tumours of the Septum; and Schwäger six cases of Angeioma of the Nasal Mucous Membrane (inferior turbinal) in this volume of the Archives. (8) Natier: Annales de Polyclinic de Paris, 1893: "Trois cas de Polypes saignants de la Cloison." I regret not being able to see this paper. (9) Garel: Annales des Maladies de l'Oreille, February, 1893. 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(14) St Clair Thomson: Proceedings of the Laryngological Society of London, vol. iii., January, 1896. This was the first case described in the proceedings of the society; it was followed in November of the same year by Dr. J. W. Bond's case; the remaining cases will be found in sequence in the table published in THE LANCET of last week (p. 1459) with the former portion of this paper. (15) Glasgow: Journal of the American Laryngological Society, 1897. Case of Angeiofibroma of the Septum, described and figured by C. Fisch; the structure of the arterial system is stated to be "throughout normal," which does not accord with the usual experience. (16) Wallicsek: Monatsschrift für Ohrenheilkunde, 1897. I only know this paper, in which the classification detailed in the text originated, through Roth's reference. (17) Pearce, Norval H.: Journal of the American Medical Association, February, 1898. An account of two cases in patients aged respectively five and 15 years, followed by an interesting discussion. (18) Hasslauer: Archiv für Laryngologie, 1900. Innocent Tumours of the Nasal Septum; Section III., Bleeding Polypus, with table of 55 cases; the first comprehensive paper of its kind that I am acquainted with, and to which further references will be found. (18a) Heymann: Handbuch der Rhin., Band iii., 1900. (19) Shurley: Diseases of the Nose and Throat, 1900. An observation is made in this treatise (p. 537) under the description of nasal papillomata, which has arrested my attention, and not fully understanding it I refer to it here. Shurley says: "The soft or what is called by some the 'mulberry papilloma' or 'angioma' on the other hand is of very rapid growth and shows quite a tendency to spread. This is why some observers have considered it malignant. On account of their site, which is within the vestibule of the nose, Seiler and others have believed that the most common cause of their origin is external irritation." The author then gives a short description of "true angeiomata or erectile tumours," of which he states that cases have been reported by Wagner, Glasgow (an angeiofibroma), Delavan, Roe, Jarvis, and Casselberry; also that Seiler has collected the reports of ten cases. He also records that Dr. George Godson reported a case of false angeioma due to a blood-clot as proved by microscopic examination, which afterwards underwent absorption. Shurley's illustration is a reproduction of Fisch's drawing of Glasgow's case. I am indebted to Dr. Shurley for the above references. (20) Krieg: Atlas of Diseases of the Nose, 1901. Nine cases admirably illustrated macroscopically with excellent descriptions in the text. This atlas was shortly followed by Gerber's, in which two cases are figured and described. (21) Grünwald: Atlas of Diseases of the Mouth, Pharynx, and Nose, translated and edited by Newcomb, 1903. Bleeding polypus of the septum is mentioned under Granulomata (p. 165): If by round-cell tissue is meant lymphoid tissue my experience on this point, as well as others in this reference, does not accord with Dr. Grünwald's. (22) Reichert: Archiv für Laryngologie, Band iii., 1903. On a Case of Bleeding Polypus of the Septum. (23) Baurowicz: Archiv für Laryngologie, Band iii., 1903, p. 451. A short paper dealing with the Etiology and Clinical History of Bleeding Polypus. (24) Roth: Archiv für Laryngologie, Band xvi., Heft 3, 1904. On a case of Bleeding Tumour of the Septum from Professor Paltauf's Pathological Institute. A brochure which, like that of Hasslauer, will be found to be of great value to students of this subject. With but few exceptions this brief *résumé* indicates the authors of clinical papers only. As regards the text-books in the English language, the references to nasal angeiomatous growths are somewhat meagre and many omit them altogether. In text-books on special pathology they are hardly ever alluded to. The Proceedings of the Laryngological Society are published by, and obtainable from, Messrs. Adlard, Bartholomew Close. They are also reproduced in the *Journal of Laryngology* after each meeting.

PS.—In the first part of this paper, Nov. 18th, in Case No. 11, the growth should have been stated to occur on the left side of the cartilage. On p. 1458, right hand column, line 19 from top, for "sometimes indistinguishable from," read *which is apt to be mistaken for*

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ETHYL CHLORIDE AS AN ANÆSTHETIC FOR INFANTS.

BY FLORA MURRAY, M.D. DURH.,

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A CONSIDERABLE amount of literature has been published dealing with the advantages of ethyl chloride as a general anæsthetic. Opinion seems agreed as to its merits where older children are concerned but disinclined to advocate its use for very young infants. Having used it as a general anæsthetic for infants of all ages I have come to regard it as one of the best means of procuring an anæsthesia of from five to 15 minutes, such as is required in an out-patient or surgery practice. It appears to be as safe and suitable for babies as for older children and it does not produce bad after-effects. Among the deaths recorded from this anæsthetic only very few have occurred in children and none in young infants. I have administered ethyl chloride to 150 infants under a year old; for the purposes of these observations no cases above that age have been included. The youngest cases were five and 14 days respectively and a large proportion of them were from five to seven weeks old. Many of them had not undergone any preparation at all and the only precaution taken with regard to the others had been to withhold food for some hours that morning. They included numbers of the weak and ill-developed children common to hospital out-patient departments. Ethyl chloride may be used equally well for major and for minor operations, but its use in prolonged operations is hardly to be recommended, partly owing to the waste of the drug by evaporation and partly because it has no special advantage over chloroform and the A.C.E. mixture when a narcosis of from 20 to 40 minutes is required. For minor surgery, where one is anxious to shorten the period of recovery and let the child go home as soon as possible, it is invaluable.

It is a successful anæsthetic in cases of respiratory embarrassment. I prefer it to any other for empyemata and the relief of pharyngeal abscess in babies; it is also very suitable for tenotomy, sounding, circumcision, and the removal of adenoids, lipoma, polypi, dermoids, cysts, or nævi. For most of these operations the surgeon is satisfied with an anæsthesia of 10 or 15 minutes, and if that length of time is insufficient it is a simple matter to prolong it a little. When there is much work to be done the short time necessary for induction is a distinct gain to the operator as well as to the infant. The simplest form of inhaler is the best to use; a useful one consists of an ordinary shaft on to which the face-piece and bag fit; the free end is closed by a stopper attached by means of a fine chain and the anæsthetic is sprayed through this opening. To the end of the shaft which enters the bag two curved wires are fitted, so adjusted

as to make a little cage in which a small sponge is placed. When ethyl chloride is sprayed into a bag of the usual size part of it vaporises and the other part tends to fall to the bottom and to vaporise as the patient breathes in and out. A young infant does not make a sufficient respiratory effort to produce the necessary amount of vaporisation and for this reason induction is often unduly delayed and the anæsthesia is not smoothly maintained. The sponge inside the bag intercepts the anæsthetic and by holding it nearer to the child obviates these defects, making it possible for the patient to inhale it more rapidly and without effort. The same result is obtained if a bag of about half the usual size is employed, but it is not always convenient to change the bag between the cases.

A celluloid face-piece is generally preferable since it not only permits the anæsthetist to observe the patient more readily but also resists the action of the vapour better than rubber. For infants of a few days or a few weeks old I commence by spraying three cubic centimetres into the inhaler; for those of six months and upwards I give five cubic centimetres at once. The mask is then approached to the face but not pressed against it so that the baby has several breaths of air and vapour mixed; it is then more closely applied so as to exclude all air except that which is already in the bag, and in a few seconds the child becomes unconscious. When one is sure that the anæsthesia is deep and the surgeon has made his incision or begun the operation the mask should be removed from the face and a few breaths of air should be given. If it is desired to continue the period of narcosis for some time the mask should not be kept off for long but only raised occasionally for air. If the respiration indicates the lightening of the narcosis a few more cubic centimetres may be added to the bag; on these lines the anæsthesia may be indefinitely prolonged. I think it is desirable that the induction should be as quiet as possible and for this reason I dislike to have the child much restrained. All that is necessary is that the nurse or attendant shall prevent the child from clutching the face-piece or bag, otherwise free movement of the legs and arms does no harm. Physical restraint is annoying to the infant and adds to his excitement; in older children it produces terror. Respiration is the most certain guide as to the depth and duration of the anæsthesia; it should never be disregarded. When the patient is well under it is quicker than is normal, deep, rhythmical, and often stertorous; when he is coming out it becomes softer and more shallow; when an overdose has been given it suddenly changes in character and from being full and deep becomes very soft and short, then after a breath or two ceases altogether. The pulse is usually hastened but in many instances there is no appreciable difference. The corneal reflex is abolished very early; the pupil in infants is so uncertain that it cannot be considered as a sign of any value. In older children it seems always to dilate; in babies it may be contracted or dilated, and I have observed it also to alter more than once during the same anæsthesia without being able to give any reason for the variation. The secretion of mucus, especially when the anæsthesia is prolonged, is not so frequent among children in their first year as among older children. I have had two cases in which it caused inconvenience; both children were cutting teeth and had increased salivation at the time. No fatalities occurred among these infants but four of them stopped breathing during the administration. This happened when I had comparatively little experience in the administration of this particular anæsthetic. Since I have adopted the method of giving plenty of air I have not had any difficulties. These four cases occurred during the operation for phimosis, during which a deep anæsthesia is desirable. Two of the patients were vigorous and healthy children and it is possible that they were not sufficiently deeply anæsthetised and that the suspension of respiration was due to surgical shock; the other two were weak and feeble infants under four months old and the cause remained uncertain. In one case respiration was suspended before the operation, which was subsequently successfully completed, had been begun. Animation was restored by the application of brandy and friction to the lips; and though in two cases the tongue was drawn forward and artificial respiration was resorted to there was never any real difficulty in reviving them and it was always possible to finish the operation.

Infants probably suffer less than any other class of patients from after-effects. After a small dose they become conscious at once; after a large one they sleep for 10 or 20 minutes, unless they are in pain when they rouse up sooner. At this age vomiting and convulsions as the consequence of the anæsthetic do not occur, and the food which the mothers are apt to press upon the infants as soon as they have been restored to them does not seem to cause them any ill-effects. Unless they are in much pain they are fit to be dressed and removed from the hospital in from a quarter to half an hour. I used ethyl chloride in one case of intussusception; the child, aged six months, was very ill and reduced and did not require much of the anæsthetic. The actual operation lasted 20 minutes, the administration 23 minutes, the amount of the drug used was 15 cubic centimetres, there was no preliminary struggling, the abdomen was well relaxed, and the anæsthesia was perfectly easy and smooth, the child recovering from it almost at once without any vomiting or other unpleasant after-effects. In this case ethyl chloride was chosen with a view to shortening the narcosis.

One of the principal factors in producing shock in children is the length of the anæsthesia; by using ethyl chloride the periods of induction and recovery are so much shortened as to make an appreciable difference to a patient in a bad condition. It is probably the easiest and pleasantest anæsthetic to inhale. The smell of the drug is not obtrusive and it is such a strong respiratory stimulant that the patient does not require to make any effort; on the contrary, it promotes respiration against his will. Herein lies its chief danger, for if large doses over-stimulate the respiratory centre and cause a tonic contraction of the diaphragm the patient may die from paralysis of the respiration. This event is liable to occur soon after induction, the heart remaining unaffected.

The alternative anæsthetic for babies is chloroform and its mixtures, which entail a certain amount of risk for very young and very weak infants. The depressing action on the heart, the tendency to vomit or retch during induction, and the excitement produced add to the ordinary risks in these cases. The length of the narcosis and especially of the recovery period are serious disadvantages and the danger of confiding these children to the care of an inexperienced guardian afterwards is considerable. At this age ethyl chloride is not liable to cause vomiting or retching and the period of excitement is reduced to a minimum. Further, there is practically no risk in sending the children away in unskilled hands, all of which advantages will no doubt tend to popularise its use for infants.

Belgrave Hospital for Children, S.W.

TWO CASES OF SPASM WITH HYPERTROPHY OF THE PYLORUS IN INFANTS CURED WITH OPIUM.

BY NEWMAN NEILD, M.B. VICT.,
ASSISTANT PHYSICIAN TO THE BRISTOL GENERAL HOSPITAL.

THE theory of the causation of the so-called congenital hypertrophic stenosis of the pylorus which has obtained the most support is the theory that the hypertrophy is the rapidly acquired result of frequently recurring spasm of the pylorus. The following two cases appear to lend a further argument in favour of that theory. The question as to the causation of that spasm is still a matter for conjecture.

The first case was that of an infant, aged five weeks, brought to me at the Bristol General Hospital. The child was breast fed and the mother appeared healthy and had a good supply of milk. She complained that the child was wasting and vomited shortly after taking the breast. The vomiting commenced a few days after birth and the child, "a fine big baby born," began to lose flesh. As a rule there was constipation but there were occasional attacks of diarrhœa. The vomiting was usually forcible. The child was very wasted and the abdominal parietes were thin. A few slow contractions of the stomach could be made out, although the pylorus could not be felt. The last feed had been taken an hour previously and the child had been sick shortly afterwards. Three days later the child was seen immediately after taking the breast and after a few minutes there were plainly visible the characteristic gastric waves and the pylorus was distinctly palpable and appeared to be tender.

The little patient was recommended for admission but no bed being then available, the infants' ward being full, a mixture containing bismuth and soda was prescribed. A week later the child was again brought to the hospital unimproved. It then occurred to me to give an antispasmodic and on account of its marked action upon the spasm of unstriped muscle, as shown in asthma, renal and biliary colic, and so on, opium was selected. The susceptibility of infants to opium—most of us carry in our minds the warning fact that one minim of laudanum has proved fatal to an infant—led to my prescribing a small dose with the intention of increasing it later. One minim of the tincture was added to ten ounces of water and the mother was directed to give the child one teaspoonful of this 20 minutes before each feed. A week later the patient was seen again in the out-patient department, the child having shown such marked improvement that the mother had refused to allow the child to become an in-patient when written for. Vomiting was said to be less frequent and the child seemed to be gaining flesh. During the next seven days the frequency of the vomiting had dropped to twice a day and the child was obviously greatly improved in appearance, although it is interesting to note that the mother now complained of the child's increased peevishness and irritability. Three weeks afterwards the opium was stopped but the vomiting beginning to return the mother was told to continue the opium and when the bottle was half empty to fill it up with cold boiled water and to continue the teaspoonful doses as before—a convenient, if somewhat rule-of-thumb, method of gradually reducing the dose. The child is now, some months later, plump and seems in no way abnormal.

Shortly after this case I saw an infant at the Bristol General Hospital suffering from daily frequent and forcible vomiting in whom I thought that I could detect waves of gastric contraction. The child was bottle-fed and certain modifications were made in the milk, and opium was prescribed as before. The recovery was rapid but I am unwilling to include the case as the diagnosis was not absolutely certain and also because modifications were made in the diet.

The next case came under my care at the Bristol General Hospital on Oct. 9th. One could not wish for a more typical case for the purpose of putting a certain treatment to the test. The patient, aged eight weeks, had been bottle-fed from birth, the mother having suffered from white leg. Shortly after birth the child had jaundice, otherwise it was "a fine strong baby." At the end of the first week the vomiting was first noticed and at the same time there was constipation. Various modifications of diet had been tried with no good result; the vomiting gradually became more forcible until the present time when the child lying in the cot would vomit over the side of the cot on to the floor. When I saw the child at the end of the eighth week there was great emaciation, the gastric waves were strong, and the pylorus was plainly palpable. No change was made in the diet in use at this time, equal parts of milk and water, but a teat bottle was substituted for one with a long rubber tube. Opium was prescribed as before, one-eightieth of a minim in a drachm of water 20 minutes before each feed. A week later there was no improvement, so one-fortieth of a minim was ordered. It was subsequently found that very early the first bottle of medicine had been broken—how early the mother seemed disinclined to admit—and the child, for some days at any rate, had been without medicine. A week later there was distinct improvement in the appearance and vomiting had dropped in frequency to twice in the day and once at night. The scales of the local grocer having been requisitioned the child was weighed every other day and during the next fortnight, with surprising regularity, there was an increase of from one to four ounces in the two days. The improvement is continuous and the child is doing well.

Two cases successfully treated with opium are insufficient to allow one to claim that opium is a specific in this disease, but the following conclusions may be fairly drawn from them: 1. Some cases of spasm with hypertrophy of the pylorus may be successfully treated with opium in the ordinary routine of the hospital out-patient department. 2. In some cases modification of the diet, stomach washing, and tube feeding are not necessary to the cure. 3. No case should be subjected to an operation until opium has been tried, unless, possibly, some other antispasmodics, such as the belladonna group, have been found equally efficacious.

NOTE.—Since the above was written I find in this month's *Scottish Medical and Surgical Journal* (article by Dr. John Thomson) that Heubner recommends tincture of opium (G.P.) in doses of from one-twentieth to one-tenth of a minim. Whether it is given before each feed or not I do not know. It is interesting to note that he considers operation unjustifiable in these cases. I may add that I have now under my care a third case, breast fed, aged three months, doing well as an out-patient under opium.

Clifton.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

NOTE ON A CASE OF SECONDARY PAROTITIS.

BY A. W. PEAKE, M.R.C.S. ENG., L.R.C.P. LOND.

I HAVE read with much interest the article on the Pathology and Prevention of Secondary Parotitis by Mr. Rupert T. H. Bucknall, which appeared in THE LANCET of Oct. 21st, p. 1158, and should like, with your kind permission, to place on record a case under my care which ended fatally on the date of publication of the paper.

The patient, a man, aged 88 years and eight months, had an abdominal growth which was diagnosed as carcinoma of the cæcum. There were increasing ascites and œdema of both legs. For the last few weeks of his life he kept his bed and lived on liquid food. His mouth was attacked by stomatitis some four weeks before death, with much fœtor of breath and dribbling of saliva. A week later swelling of the left parotid appeared, accompanied by difficulty and pain in opening the mouth. The swelling gradually subsided and in eight days had disappeared, when the right parotid became inflamed, together with the submaxillary gland on the same side. Movement of the jaw was now attended with so much pain that considerable persuasion was necessary to induce the patient to take any nourishment. The parotid enlargement increased until his death on Oct. 21st. On the morning of that day when I saw him he was very drowsy. His temperature was 100·8° F., his pulse was 124 and thready, and his breathing was hurried, with loud tracheal râles. The swelling then was enormous; the overlying skin was red and shiny and the tumour was hard and brawny, with a softening centre below the angle of the jaw. The right upper eyelid was so œdematous that the globe could not be exposed. The drowsiness deepened into coma, in which state he died.

Bishopston, Bristol.

A CASE OF FRACTURE OF THE FIRST CERVICAL VERTEBRA.

BY WILLIAM EWART MAW.

RECENTLY, I was called to see a man who had fallen down some area steps, eight or ten in number. On my arrival at the house, ten minutes or so after the message was received, I found an elderly man lying at the foot of the stairs quite dead; the heart had ceased to beat and the extremities were becoming cold. It was subsequently ascertained that he was 74 years of age. Beyond three or four superficial abrasions on the top of the scalp no injury could be detected. An inquest was of course necessary and at the post-mortem examination all the organs were found to be in a healthy condition with the exception of a little atheroma about the valves of the heart and aorta. On opening up the vertebral column, however, it was seen that the posterior arch of the first cervical vertebra was broken off and although held in position by the ligaments could be moved by the finger. The fracture was quite symmetrical on both sides and was just anterior to the grooves for the vertebral arteries. There was no displacement of the bone and no indentation was perceptible on the spinal cord, either

anteriorly or posteriorly; but as death was stated to have ensued immediately after the fall it is possible that the head was forced backwards upon the spine, thus nipping off the posterior portion of the atlas, and that death was caused by the pressure of the odontoid process of the axis.

I have not been able to find a record of a similar case where the fracture has been so complete and symmetrical and I think the case worth recording.

Carlton Vale, N.W.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

ST. GEORGE'S HOSPITAL.

A CASE OF PERFORATION OF THE DUODENUM BY A BODKIN; LAPAROTOMY; RECOVERY.

(Under the care of Mr. T. CRISP ENGLISH.)

FOR the notes of the case we are indebted to Mr. Lawrence Jones, surgical registrar.

A girl, aged 16 years, was admitted into St. George's Hospital on Sept. 16th last with the history of having swallowed a broken bodkin two days previously. The details of the accident were somewhat curious. She was lying in bed on her back, using the bodkin as a toothpick; she fell asleep and awoke with a pain in her throat which made her cough; she then felt at the back of her pharynx the bodkin, her attempts to remove which only succeeded in pushing it further down, and she finally swallowed it. Since this occurred she had been kept in bed on a fluid diet and purgatives had been given without the desired effect. The presence of the foreign body had caused no symptoms beyond a pricking pain in the right hypochondrium, and when she was seen its existence was only indicated by slight tenderness on deep pressure in that region. Exposure to the x rays demonstrated that the bodkin was situated in the right side of the abdominal cavity above the umbilicus, apparently in the region of the pylorus or duodenum, lying transversely. After a consultation it was decided to watch the case and the girl was kept in bed, being treated with suitable dietary and purgatives, but nothing further occurred beyond the persistence of some slight pain which seemed to shift vaguely about the abdomen. On the 22nd she was again photographed and the bodkin was now seen to be lying three inches to the left of the umbilicus and rather below it; on this occasion its shadow was much more clearly defined than at the first exposure. Again on the 26th it was found in the same position, but still no symptoms arose, and the x rays seemed to indicate the passage of the body from the stomach to the descending or sigmoid colon; it was thought that the bodkin would pass naturally and that an operation was not called for. Symptoms, however, began to make their appearance on the 28th, when there was more severe pain in the right hypochondrium shooting up to the axilla, and in the evening and after tea on the following day the pain became suddenly very acute and there were definite rigidity and tenderness over the right side of the abdomen.

In the absence of the surgeon under whose care the patient was Mr. English saw her and decided to operate. The abdomen was accordingly opened by an incision four inches long through the upper part of the right rectus. The peritoneum was injected and sticky and the colon was much dilated. The bodkin was found projecting through the outer aspect of the second part of the duodenum from which it was withdrawn. The small perforation in the viscus was closed with two Lembert stitches; a gauze drain was inserted owing to the presence of peritonitis in the neighbourhood. Considerable pain and some vomiting followed the operation but after the third day convalescence was uneventful. The sutures were removed on the fourteenth day and the patient left the hospital on Oct. 25th completely recovered. The broken bodkin was found to be two and a half inches long, the rough broken end having perforated the duodenum.

Remarks by Mr. LAWRENCE JONES.—Apart from the rarity of an operation for the removal of a foreign body from the duodenum this case is of considerable interest as showing the occasional fallacy of the x rays which here seemed to demonstrate the passage of the bodkin from the pylorus to the colon, whereas in all probability it had been on the first exposure situated near the pylorus and, falling back again on to the greater curvature of the stomach, had remained in that position when the other two examinations were made. This doubt as to the position of the bodkin had been the chief argument in favour of waiting for localising signs.

Many instances are on record of foreign bodies having been swallowed and their infinite variety is notorious. For the most part they either are prevented by their size, shape, or number from passing the pylorus or else they are expelled in the natural manner. Of the former class there are numerous examples in which the foreign body has been removed through the mouth or by the operations of œsophagotomy and gastrotomy. Mayo Robson[1] mentions extraordinary collections of articles which have been safely extracted from the stomach (in one instance "42 cast-iron garden nails 1½ inches long, 93 brass and tin tacks from ½ to 1 inch long, 12 large nails, three collar studs, one safety pin, and one sewing needle") and he cites Loretta who removed several needles from the stomach and others from the left lobe of the liver of a woman who had attempted suicide. In another case recorded by H. H. B. Macleod[2] the list included "33 hairpins, 14 sewing needles, five safety pins, 27 nails, 12 pins, and 17 fragments of glass." It is, of course, hopeless to expect any natural relief of the presence of such amazing collections as these. In the case, however, of single bodies accidentally swallowed they often seem to be able to negotiate the various curves of the intestinal canal and to appear in the stools when once they have safely passed the pylorus. The time of transit varies; it may be comparatively short, as in Norton's case,[3] in which a pin 3⅞ inches long traversed the alimentary tract of a 13 months old child in 21 hours, and in Eshner's patient,[4] who passed a shawl pin four days after ingestion, or it may occupy as long a time as four weeks, the time taken by the safety pins mentioned by Owens[5] and Solomons.[6] Reference has been especially made to these four instances to show that even pointed bodies such as needles can pass naturally without inflicting any damage on the walls of the canal. If these bodies are not passed naturally their removal is effected by surgical means, either because they have been shown by the x rays or by the constant situation of the pain they cause to be making no progress, or else because their presence is considered to be a menace to the life of their possessor. Mr. R. Clement Lucas[7] has reported the removal of a nail two inches long from the second part of the duodenum of a child who had swallowed it four weeks before, during which period it had been shown by the x rays to have retained its original position to the right of the spine reaching from the first to the fourth lumbar vertebra. Mr. C. W. Mansell Moullin[8] removed a broken hatpin four and a half inches long from the small intestine just above the ileo-cæcal valve, constant localised pain being the chief indication for the operation. Foreign bodies which give trouble after their passage through the pylorus generally do so by the formation of a local inflammatory mass in their neighbourhood, the existence of the body, frequently a fishbone, being often unsuspected before operation, as it was in the cases of Morton[9] and Beach,[10] the latter of whom considered the mass with which he had to deal probably malignant. Piquaud and Grenet and Blum[11] have placed on record post-mortem examinations in which the cause of death was discovered to be an abscess around a diverticulum of the ileum which had been perforated by a fishbone, and an extraordinary simulation of strangulation due to the erosion of a knuckle of gut in

[1] Diseases of the Stomach.
[2] Practitioner, September, 1905.
[3] Boston Medical and Surgical Journal, 1893, vol. cxxviii., p. 336.
[4] Medical News, 1892, vol. lxi., p. 467.
[5] Medical Record, 1887, vol. xxxi.
[6] Pediatrics, 1898, p. 295.
[7] Report of the Society for the Study of Diseases in Children, 1900, 1901.
[8] THE LANCET, May 9th, 1896, p. 1284.
[9] Brit. Med. Jour., 1894, vol. i., p. 241.
[10] Boston Med. and Surg. Jour., 1898, vol. cxxxix., p. 489.
[11] Bulletins et Mémoires de la Société Anatomique de Paris, 1900, p. 360.

a hernial sac by a fragment of bone is reported by Shiach.[12] That bodies which are especially liable to cause inflammation around by their presence may remain for some time in the intestine without giving rise to any symptoms is shown by Davies-Colley[13] who operated upon an abscess appearing in the neighbourhood of the descending colon five months after the ingestion of its cause, a packing needle five inches long.

Medical Societies.

EPIDEMIOLOGICAL SOCIETY.—A meeting of this society was held on Nov. 17th when the new President, Dr. J. F. W. Tatham, took the chair after it had been vacated by Dr. B. A. Whitelegge.—Dr. J. L. Todd read a paper on the Distribution and Spread of Sleeping Sickness in the Congo Free State from observations and inquiries made during a journey of 2000 miles and a residence of two years, by himself and the late Dr. J. Everett Dutton, who had been sent out by the Liverpool School of Tropical Medicine. Their information had, he explained, been obtained by personal observation and questioning natives and Europeans, from the replies received to circular lists of questions sent to the State officials and missionaries throughout the Congo, and the report by the French Commissioners presented to the Brussels Congress in 1897. Every district in which the disease had appeared up to August of the present year having been visited or reported on he was able to exhibit three spot maps showing the prevalence and distribution of the disease (1) in 1884, when European influence was only coming into existence and the sleeping sickness followed the native and Arab trade routes; (2) in 1897, when the Arabs were expelled and with the extension of long-distance transport by caravans and steam-boats the disease spread in every direction; and (3), in 1905, when European supremacy having been fully established and transport having become easy and rapid there was an enormous extension of trypanosomiasis, mainly due to the aggregation at posts along the lines of trade of native soldiers and labourers, often recruited from infected districts. Sleeping sickness had been ascribed to all sorts of causes and wars and famines seemed to conduce to it, no doubt through the consequent migrations, but there could be no reasonable doubt that the essential cause was the hæmatozoon known as trypanosoma Gambiense, of which the intermediate host was the glossina palpalis, and from the habits of the insect, which though not aquatic in its larval stage preferred moist places, the areas of the greatest prevalence were the riversides and shores of lakes. Frequently a riverine population would show an incidence of trypanosoma of 15 or 20 per cent. while the natives on higher ground from one and a half to two miles away escaped, or in isolated communities reputed to be free a few cases would be found to be recent immigrants from infected districts. The chronicity of the disease was such that the parasites might be present for five, ten, or 15 years without giving rise to symptoms but death might follow a few months after infection. The best evidence was the presence of the trypanosoma in the juice obtained by exploratory puncture of the enlarged glands, but as a rule palpation of the cervical glands was sufficient, in the absence of tuberculosis, syphilis, pediculi, &c., to justify a diagnosis and could be practised by others than medical men. The alarming spread of sleeping sickness demanded vigorous measures, the advisability of which was fully appreciated by the majority of the natives. In default of any curative treatment the only practical procedure would be (1) the establishment on the main roads leading to the healthy districts of posts of inspection; (2) the expulsion from healthy districts of all persons having enlarged glands and their removal to those already infected; (3) absolute quarantine was inadmissible but it would be possible to exercise a control over the migration of the natives; and (4) gland palpation should be employed for practical purposes though puncture for scientific.—A letter was read by Sir Patrick Manson from Captain E. D. W. Greig, I.M.S., on the recent extension of sleeping sickness in Uganda and down the Nile as far as lat. 4° N., urging the importance of determining the distribution of the glossina in non-infected areas and asking whether the population ever became "salted"—i.e., acquired some degree of immunity. Sir Patrick Manson thought this question one of great importance but suggested that it might rather be toleration than immunity, as was the apparent exemption of the negroes from malaria.—Dr. G. C. Low said that sleeping sickness was first reported from Uganda in 1900 by a missionary, Dr. Coote, but many deaths previously ascribed to famine were probably from this cause. It had since spread in all directions, but mostly northwards owing to the growing trade. In some places 30 per cent. of the natives had trypanosomata, but he had seen enlarged glands among Suahilis and Zanzibaris from districts perfectly free.—Dr. D. N. Nabarro when in East Africa had seen no sleeping sickness on the Albert Nyanza but now the people of Uganda were dying at the rate of 100,000 per annum in a population of 5,000,000. He knew a European with all the symptoms of trypanosomiasis, in whom puncture had been negative, but it was often so in the later stages.—Dr. L. W. Sambon believed that the alleged extension of the tsetse country was due merely to better observation, for so long as the fly did not cause trypanosomiasis its presence was ignored. He had predicted the spread of the disease down the Nile, knowing the fly to be there. Other glossinæ might be intermediary hosts but no other flies than glossinæ.—Dr. F. W. Mott had now examined 30 brains and had found in all the same changes, a characteristic chronic inflammation of the perivascular lymphatics, not unlike that in general paralysis of the insane. The parasites were, however, not so numerous in sleeping sickness as in trypanosoma fever but diplo-streptococci swarmed as had been described by the Portuguese commissioners and by Castellani.—Dr. Todd, in reply, said that a certain toleration seemed to be acquired by the natives of long-infected districts; recovery might occur but the toleration was seen in the extreme chronicity of the disease in man and beast, the parasites being present for ten or more years without giving rise to any symptoms. In one village the whole population, adults and children, yielded trypanosomata, the former having probably had them for years. The detection of trypanosomata required very accurate technique, there must be no water or air bubbles and the examination and staining must be carried out immediately, for they quickly became indistinct and disappeared. In advanced cases the glands became soft and atrophied, so that puncture was most successful in the early stages. Among 3000 cases examined the parasites were found in 85 per cent. of the enlarged glands. In some comparative experiments they were detected in the blood in only 15 per cent. before, and 50 per cent. after, centrifuging; in 87 per cent. of lumbar spinal fluid, but in 97 per cent. of that from enlarged glands. The use of a combination of aniline with arsenic had proved encouraging with experimentally infected animals and might be tried cautiously on man.

EDINBURGH OBSTETRICAL SOCIETY.—A meeting of this society was held on Nov. 8th, when the chair was occupied first by Emeritus Professor A. R. Simpson and afterwards by Dr. J. W. Ballantyne, the newly elected President.—Dr. A. H. F. Barbour read notes on a case of Exomphalos complicating Labour. The fœtus had died in utero. The onset of labour was marked by a copious accidental hæmorrhage, for which there was no evident cause. The bleeding occurred before the os was dilated. The fœtus presented by the breech and the presence of the tumour caused two hours' delay after expulsion of the breech, the delivery being chiefly effected by suprapubic pressure. There was no hæmorrhage in the third stage. The placenta showed no signs of old hæmorrhages and the bleeding occurred before the os was dilated; it therefore could not be due to detachment of the placenta by a short cord but the bleeding was itself apparently the exciting cause of labour. The fœtus showed anencephaly with spina bifida as well as exomphalos.—Dr. B. P. Watson read a paper entitled "The Removal of the Liquor Amnii a Cause of Death of the Fœtus and Changes in the Placenta: an Experimental Investigation in the Rabbit." Rabbits were selected as the animals for experiment, as the structure of their placenta had been very fully worked out by Minot, Duval, and Chipman, the last especially giving the most minute and detailed account of the whole gestation period. The animal having arrived at the desired period of gestation, which varied in different cases, it was anæsthetised and the abdomen was opened in the middle line above the pubes with all antiseptic precautions. The uterine cornua with their gestation sacs were expressed from the abdomen. Sacs were

[12] Brit. Med. Jour., 1893, vol. i., p. 232.
[13] THE LANCET, Jan. 13th, 1900, p. 96.

selected of the same size and their exact position was noted. They were then punctured with a glass serum syringe having a fine needle. The needle was inserted away from the placenta and great care was taken to avoid injury to the fœtus by the needle or the fingers. The fluid was withdrawn. This was all that was done in the earlier cases but in the later cases one of the normal sacs was excised complete. Only one animal of all the series aborted and it was almost at full time at the date of operation. The uterus was returned and the wound was closed with horsehair and a collodion dressing was applied. Only one showed signs of sepsis. The animal was killed with chloroform after the lapse of a certain number of days, from three up to 14. The uterus was immediately excised, the vagina and mesometrium being previously ligatured to prevent the loss of blood from the placenta. The specimens were hardened in formalin and sections were made and their naked-eye characters were noted and microscopic sections were prepared. The sequence of events that occurred after withdrawal of the fluid, either of the yelk sac or the liquor amnii, were (1) death of the fœtus; (2) arrested secretion of the liquor amnii; and (3) placental changes. All the experiments resulted in death of the fœtus almost immediately after aspiration of the fluid, as proved by comparison of the development with that of the fœtus in the excised sac. The death was evidently due to the arrest of the circulation in the placenta consequent upon the general alteration of pressure within the sac following the aspiration of the fluid. The liquor amnii was in itself not necessary for the life of the fœtus as several cases of extra-membranous development of the human embryo had been recorded. The changes which the dead fœtus underwent were very characteristic. The normal pink translucent appearance gave place to a dull grey and the rounded contour was lost, the dead fœtus becoming flattened out by pressure between the placenta and the upper wall of the sac. In none of the cases was there any swelling of the tissues or accumulation of sanguinolent fluid in the abdomen such as was met with in the macerated human fœtus retained in the uterus and bathed in liquor amnii. After a very detailed description of the histological and other changes which ensued in the fœtal and maternal portions of the placenta, Dr. Watson said that it was well known that it was often extremely difficult to induce abortion in the human subject provided the ovum was healthy, and that in many cases manual separation alone could suffice. This was due to the close incorporation of fœtal and maternal structures and to the fact that the zone of separation in the human placenta, which might be regarded as the spongy layer of the decidua, had not sufficiently developed. The development of this zone was much more clearly and definitely seen in the rabbit's placenta. The formation of this zone was shown by these experiments not to be dependent on the vitality of the fœtus. The dead ovum and placenta were not cast off till certain definite developmental changes had occurred, these changes being in every respect analogous to those which determine the separation of the normal placenta. While the maternal part of the placenta thus maintained its vitality it was otherwise with the fœtal portion. The changes were mostly an expression of the death of the tissue. This death of the fœtal placenta did not take place for a few days after the death of the fœtus, as after an interval of three days the ectoderm still retained its power of penetrating the maternal placenta. The first change was a deposit of lymph in the mesoderm at the surface as the result of a slow leakage from the fœtal vessels. As the interval lengthened after the operation and before the death of the mother the fibrinous deposit in the mesoderm became denser and extended throughout the substance of the placenta, while the cellular elements degenerated. These observations proved that the secretion of the liquor amnii ceased with the death of the fœtus and this in spite of the fact that the maternal part of the placenta showed very little departure from normal for the first few days after the withdrawal of the fluid. These facts pointed to the conclusion that in the rabbit the liquor amnii was fœtal in origin.—Professor Simpson, Dr. D. Berry Hart, Dr. F. W. N. Haultain, Dr. Barbour, Dr. W. Fordyce, and the President took part in the discussion.—The following gentlemen were elected office-bearers of the society for the ensuing session:—President: Dr. Ballantyne. Vice-Presidents: senior, Professor Sir J. Halliday Croom; junior, Dr. Berry Hart. Treasurer: Dr. William Craig. Secretaries: Dr. J. Lamond Lackie and Dr. G. F. Barbour Simpson. Librarian: Dr. Haultain. Editor of the Transactions: Dr. Angus Macdonald.

SOCIETY FOR THE STUDY OF DISEASE IN CHILDREN.—A meeting of this society was held on Nov. 18th, Mr. R. Clement Lucas being in the chair.—Mr. F. Jaffrey showed a case of Spina Bifida having also a Well-marked Post-anal Dimple. It is situated in the lumbo-sacral region.—Mr. G. R. Wilson showed a female child with Complete Hare-lip on the Left Side and Partial on the Right with a Cleft Palate affecting the Left Side.—Mr. J. P. Lockhart Mummery showed a case of Volkmann's Contracture in a boy, aged 12 years. Three years ago the patient injured his wrist and was treated by the application of splints; this was followed by ulceration of the forearm on the anterior and posterior aspects of the limb and flexion of the fingers and wrist with wasting of the muscles. Mr. Mummery is of opinion that the best treatment for severe cases is resection of portions of the radius and ulna.—Mr. George Pernet showed two cases of Tinea Tonsurans, one in a girl, aged nine years, and the other in a boy, aged 11 years, who had been treated by one application of x rays for 20 minutes. In the case of the girl she was quite cured and the hair was growing again, and in the boy, though the disease was cured, the hair had not yet grown.—Mr. Sydney Stephenson showed a case of Obstruction of the Central Artery of the Retina in a girl, aged 15 years. On Oct. 26th the patient noticed what she describes as a "dazzling" in her left eye and found that she could see parts of objects only. Ophthalmoscopic examination showed that the optic disc was indistinct and the central part of the retina very pale except as regards a small area contiguous to the lower outer side of the disc. The sight of the eye was reduced to the appreciation of shadows only. The obstruction was almost certainly due either to embolism or thrombosis of the central artery.—Dr. E. Farquhar Buzzard showed a case of Atrophic Paralysis of the Right Arm, probably anterior poliomyelitis.—Dr. F. J. Poynton showed a case of remarkable results of Anterior Poliomyelitis. There was widely distributed loss of power affecting the arm and trunk muscles.—Dr. George Carpenter showed a case of Infantile Paralysis. The patient, a boy, was attacked when two and a half months old with fever, anorexia, and paralysis. The left leg showed reaction of degeneration and the right leg loss of reaction to faradism but no polar change. The abdominal muscles did not react to faradism.—Dr. F. Parkes Weber showed a case of Peculiar Pigmentation of the Skin in a girl, aged 15 years, probably an incomplete form of Recklinghausen's disease. The earliest pigmentation was noticed at the back of the neck when the child was about 18 months old. The patient presented only one small flaccid mo'luscous tumour.—Mr. Macintosh read a paper on Some Points in the Diet of Children during the Second Year. He pointed out that though a child may be in apparent robust health at the end of 12 months, during the next few months he, in spite of the most careful directions, often failed to thrive and refused to take an adequate quantity of milk; the explanation was to be found in faulty dieting, the causes being the administration of solutions of meat extractives and an undue preponderance of starchy foods, which make the child disdain the bland taste of milk and give him a vicious craving comparable to that for alcohol.—Mr. Jaffrey read a short paper on a case of Multiple Renal Calculi. The patient, a child, had suffered for two years from frequent attacks of pain in the left lumbar region. At the operation Mr. Jaffrey removed 11 calculi of about the size of a pea. The composition of the calculi was calcium oxalate with a small quantity of calcium phosphate.—Mr. Clement Lucas related a case of Removal of a Calculus impacted in the Ureter causing Hydronephrosis. The patient was a boy, aged 11 years, who had had pain in the loin and attacks of colic for eight years, that is, since he was three years of age.—Dr. Edmund Cautley showed a specimen of a Sacular Dilatation of the upper part of the Ileum, of the size of a hen's egg, which opened into the ileum by a small orifice. During life it was at times filled with intestinal contents or gas, and varied in size, mobility, and resonance. The wall was composed of normal gut. It gave rise to symptoms of intestinal obstruction.—Dr. Cautley also showed a specimen of Diaphragmatic Hernia. The large intestine, a large portion of the small intestine, and part of the liver had passed through an opening in the right half of the diaphragm into the pleural cavity. The hernia was covered by pleura. The compressed right lung was also shown. There was no intestinal obstruction in life.[1]—Dr.

[1] Vide THE LANCET, Nov. 18th, p. 1472

George Carpenter showed: 1. A case of Hydrocephalus. The patient's head began to enlarge when he was three years old and it was said to have enlarged one inch during the last three weeks. He had commencing optic atrophy. The head measured 25½ inches in circumference. 2. A case of Cirrhosis of the Lung and Bronchiectasis, which dated from an attack of measles when the patient was three months old. Clubbing of the fingers and toes, which was marked, also dated from that time. The left lung was solid; the corresponding side of the chest was shrunken. 3. A case of Pseudo-hypertrophic Paralysis. The patient was said to have been weak since birth and had never walked. At two and a half years he had attacks of stiffening of the limbs. He walked with assistance with the legs wide apart but was too weak to get up from the floor. 4 A case of Pseudo-Hypertrophic Paralysis in a boy, aged six years. The knee-jerks were present. The child got up from the floor in the typical way by "climbing up himself."

GLASGOW MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 17th, Dr. J. Lindsay Steven, the President, being in the chair.—Dr. J. Walker Downie showed a man on whom he had performed Œsophagotomy for the removal of a Tooth Plate which had become impacted in the gullet. The patient while asleep in bed suddenly woke up with a sense of suffocation, accompanied by sharp pain in the throat. When seen by Dr. Downie the denture was felt by an œsophageal probe lying well below the level of the cricoid cartilage. Being assured that the plate had no hooks or clasps the coin-catcher was passed, the hook of which readily engaged the tooth plate, but the latter could not be moved. Killian's œsophagoscope failed to bring the plate into view. Œsophagotomy was performed under chloroform 36 hours after the plate had slipped into the gullet. When the gullet was exposed it was found that a sharp projecting corner of the plate was pushing out the œsophageal wall and at this point the wall had sloughed under pressure. The plate was of vulcanite with four incisor teeth and had two pins to fit into tooth sockets. After removal of the foreign body the gullet wall was not stitched; a soft rubber tube was passed through the nose and gullet into the stomach. The wound was packed with iodoform gauze and it closed so satisfactorily that at the end of two weeks the patient could swallow semi-solids and in another week he took meat and potatoes.—Dr. Downie also showed a man who had had a Round-celled Sarcoma of each Tonsil. Both tumours had been enucleated (this operation having been performed almost wholly by the finger nail) along with infected glands from each side of the neck. The tumours and glands were shown, together with microscopic sections of each of the new growths.—Dr. A. A. Gray gave a lantern demonstration and showed specimens of the following pathological conditions found in the inner ear. 1. Showing the presence of an Accessory Ampulla in the Horizontal Canal. No symptoms relative to such a condition were known. 2. Calcareous Deposits in the Labyrinth. These did not produce symptoms in this case. 3. Calcareous Deposits in the Vestibule of both Labyrinths. These probably did produce the symptoms of giddiness of which the patient complained during life. Deafness was also present during life but no changes were found in the cochlea sufficient to account for this symptom. 4. A case of Oto-sclerosis affecting both Labyrinths and causing Absolute Deafness. The labyrinths were both affected by the presence of calcareous deposits, the canals being affected on one side and the cochlea on the other. The auditory nerve was atrophied on both sides. 5. The Labyrinth of the Porpoise. 6. The Labyrinth of the Lemur.—Dr. W. Walls Christie read a paper on the Use of Stovaine as a Local Anæsthetic in Throat and Nose Operations. He stated the results obtained by the application of stovaine in 63 cases in which the electro-cautery or cold wire snare was used. The observations were made at the Throat and Nose Department of the Glasgow Western Infirmary Dispensary under the care of Dr. Downie. A 20 per cent. solution of stovaine in distilled water gave excellent anæsthetic results when swabbed on the mucous membrane and several instances were mentioned in which its action was strikingly rapid. The absence of any vaso-constrictor effect was noted. The conclusions arrived at from an observation of the cases were: (1) that stovaine is at least as powerful a local anæsthetic as cocaine when swabbed on the mucous membrane of the upper air passages; (2) that its effect is more rapidly produced and more rapidly passes off than that of cocaine; (3) that it is much less toxic than cocaine; and (4) that although not a vaso-constrictor its use is not attended by any more hæmorrhage than is that of cocaine.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society was held on Nov. 10th, Sir Shirley F. Murphy, the President, being in the chair.—Dr. Christopher Childs read a paper on the Recent Epidemic of Enteric Fever at Lincoln, comparing it with those at Maidstone and Worthing, which we shall publish in an early issue. He pointed out that in each epidemic the disease was undoubtedly water-borne, not only from the fact and source of the pollution having been recognised and because no other cause could be discovered, but, as he pointed out, the uniform distribution of the cases over the entire areas using the incriminated supplies and the occurrence of the primary cases in "explosive" outbursts of the disease were indicative, indeed, characteristic, of outbreaks due to infected water, though milk epidemics showed the same features on a more limited extent. As supporting the growing belief in the importance of personal infection as a factor Dr. Childs quoted Dr. E. W. Goodall to the effect that in the hospitals of the Metropolitan Asylums Board for every 1000 cases of typhoid fever admitted 16 of the staff were attacked, and Dr. F. W. Andrewes to the effect that in one of the largest London hospitals the deaths from typhoid fever among the nurses were at least 20 times as numerous as among other women of like age. The course of these three epidemics was remarkably similar, save that the "preliminary invasion" at Worthing was of larger proportion—namely, 303, as against 557 in the explosive outbreak, and that at Maidstone the numbers were 2 and 1201 respectively, the secondary and subsequent cases having been 449 at Lincoln, 401 at Worthing, and 583 at Worthing in the second epidemic.—Mr. W. Whittaker said that the three sources of infection were represented—namely, rivers by Lincoln, streams at Maidstone, and wells at Worthing.—Dr. H. R. Kenwood (Stoke Newington) maintained that 50 per cent. of the cases, ambulant, &c., were never notified and could be discovered only by house-to-house visitation and that epidemics died a natural death to which, except by such measures as cutting off a polluted water or milk supply, our efforts contributed little.—Dr. J. Groves (Isle of Wight) said that Newport had a double supply—from the chalk and from the river; leaky cesspits surrounded the well, but the authorities would not allow him access to it and it was only by a subterfuge that he discovered that water from a millpond receiving undiluted sewage flowed into the well. He considered that a knowledge of the source was more important than any chemical or bacteriological examination.—Mr. G. C. Moore, F.I.C., said that he knew a town in the West of England where the water contained but four grains to the gallon of total solids and no ammonia whatever was discoverable. There were, however, frequent small outbreaks of typhoid fever which were found to follow the periodic cleaning of the filter beds and an examination of the stream higher up revealed the entrance of crude sewage, though in amounts so small as to elude analysis.—Dr. H. E. Armstrong (Newcastle), Dr. D. S. Davies (Bristol), and Dr. A. K. Chalmers (Glasgow) also spoke.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held on Nov. 17th at Sheffield, Dr. D. Lloyd Roberts, the President, being in the chair.—Dr. T. B. Grimsdale (Liverpool) showed Composite Charts of the Pulse and Temperature during the few days before and the week after 120 abdominal operations. In 40 cases antiseptics were used; in another series of 40 antiseptics were not used during the operation but aseptic precautions were employed; and in a third series of 40 cases rubber gloves were used in addition to the usual aseptic precautions. In the pulse chart the "antiseptic" curve was less satisfactory than the aseptic curve and the "glove" was the best as it returned to normal about 24 hours before either of the other curves. In view of the importance of the pulse curve as an indication of morbidity this was regarded as strong evidence in favour of the use of gloves. In the temperature chart also the "glove" curve was superior to the "aseptic" curve in some respects and both were markedly in advance of the "antiseptic" curve.—Dr. R. Favell (Sheffield), after mentioning a case of Cæsarean Section done for Acquired Stenosis of the Vagina, described another case in which he operated for the second time on one patient and found very considerable adhesions between the abdominal wall and the anterior surface of the uterus.—Dr. A. W. W. Lea (Manchester) described a case in which

he was consulted for Persistent Pain following Cæsarean section. On opening the abdomen and separating extensive adhesions it was found impossible to save the uterus, which was removed accordingly.—In the discussion some of the speakers thought that adhesions between the uterus and the abdominal wall implied some degree of infection, while others thought that the chemical irritation of antiseptics was a sufficient cause for adhesions. Reference was made to the possibility, owing to the presence of adhesions, of doing a second Cæsarean section without opening the peritoneal cavity. This was considered to be a very unusual occurrence.—Specimens shown at this meeting were a Myeloid Sarcoma of the Uterus and a large Fibromyoma Uteri which had undergone axial rotation removed by Dr. J. W. Martin (Sheffield); also a Calcified Fœtus of five months' growth removed from the abdomen seven years after an ectopic pregnancy by Dr. W. E. Fothergill (Manchester).—Dr. Favell showed a Myomatous Uterus removed by abdominal hysterectomy together with the appendages. The ovaries contained small lutein cysts and there was a large vesicular mole in the uterus.—Dr. Grimsdale showed an undoubted example of Ovarian Pregnancy.—Dr. J. E. Gemmell (Liverpool) showed a large mass of Fibromyomata removed together with a uterus containing an ovum of a few weeks' growth.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on Nov. 9th, Dr. W. Tusting Cocking, the President, being in the chair.—Mr. Graham Simpson read the notes of a case of Diffuse Phlegmonous Gastritis. The patient was a man, aged 35 years, whose symptoms resembled those of perforated gastric ulcer. After infusion the abdomen was explored but the patient died during the operation. Mr. Simpson showed the stomach, the walls of which were greatly thickened, the submucous layer being the seat of a whitish infiltration. One section of the stomach wall showed masses of streptococci. He concluded by giving a short *résumé* of Professor Leith's paper on the subject.—Mr. R. J. Pye-Smith showed: (1) A large Mulberry Calculus removed from the Bladder of a young man whose history indicated that it had been present since childhood; (2) Microscope Section of a Cancerous Prostate, partially removed (with relief) for obstructive symptoms; (3) four Mummified Gangrenous Toes, which had separated spontaneously in the course of four years, the foot having been kept carefully cleansed with antiseptics; (4) a Uterus with Broad Ligaments, Iliac and Obturator Glands (one of which was markedly infected), and one Ovary removed for cancer of the cervix by the combined route; and (5) a Myosteoma removed from the inner head of the gastrocnemius of a man with talipes equinus.—Dr. A. E. Barnes showed: 1. A specimen of Pulmonary Embolism which occurred 11 days after operation for extravasation of urine. The embolus was a long one, extending from the tricuspid valve to the bifurcation of the pulmonary artery, both branches of which were plugged. 2. A case of Syphilitic Myelitis coming on suddenly seven months after a primary sore. In one leg there was loss of sensation to pain and heat but not to touch. Both legs were in a state of spastic weakness.—Mr. W. Tregenza showed a large Salivary Calculus (about one and a quarter inches long) from Wharton's duct.—Dr. G. Wilkinson read a short paper on the Treatment of Fractures of the Humerus and showed a splint named by him the "double wedge." The splint was made of millboard packed with cotton wadding. It filled the space between the chest wall and the arm, giving a firm support for the latter to rest upon. An outer splint of millboard or Gooch splinting was used and was kept in position by bandages sewn on to the wedge and tied round the arm and outer splint. He recommended the use of the "double wedge" equally for fractures of the neck, shaft, or lower end of the humerus.

GLASGOW PATHOLOGICAL AND CLINICAL SOCIETY.—A meeting of this society was held on Nov. 13th, Professor R. Muir, the President, being in the chair.—Dr. Renton showed fresh specimens of a large Myoma of the Ovary and of an unusual-shaped Mulberry Calculus.—Dr. James Hamilton showed a Sacculated Aneurysm of the Aorta.—Dr. James H. Nicoll showed:—1. Several patients from a further series of cases of Hernia of the Ovary in Infants. He had seen in all 35 cases, in 30 of which the diagnosis was verified by operation. In his present series of cases he was able to deal with the condition without the removal of the ovary. Reference was also made to his former cases[1] and to the diagnosis and treatment of this condition. 2. Several of the most recent Cystoscopes with special reference to the inspection of the ureteral orifices, in showing which he expressed the opinion that the results of ureteral catheterisation and of urinary segregation were not meantime sufficiently uniform to establish confidence, and that in practice reliance must be placed on careful and, if necessary, repeated cystoscopic inspection of the ureteral orifices. 3. Lantern slides of the steps of an operation for the Radical Removal of Penile Carcinoma. The method shown, which had been used for 11 years, aimed at the removal *en masse* of the anterior two-thirds of the penis, the dorsal vessels and lymphatics, the fat of both groins with the contained superficial inguinal glands, and of the deep inguinal glands in the pelvic brim, a Y-shaped incision with looped leg being employed.—Dr. A. Freeland Fergus read notes of a case of Conjunctival Tuberculosis which occurred in a child, aged six years. There was an ulcer four millimetres broad present in the upper fornix of the right eye, with accompanying slight granulations at its margins, and enlargement of the pre-auricular and one of the cervical glands. The whole of the affected tissue was excised together with the involved glands and the wound healed perfectly. Six months later the child was in excellent health.—Dr. W. B. Inglis Pollock demonstrated the microscopical preparations of the case.—Dr. James Hamilton read notes of a case of Cerebro-spinal Meningitis and Dr. John Anderson showed microscopical preparations from the same. The patient was a young man, aged 24 years, whose illness of three weeks' duration presented the features of a sporadic case of cerebro-spinal meningitis. The fluid obtained by lumbar puncture and the subsequent necropsy showed the infection to be pneumococcal in character.

ROYAL ACADEMY OF MEDICINE IN IRELAND.—A meeting of the Section of Medicine of this society was held on Nov. 10th, Professor James Little being in the chair.—Dr. Walter Smith made a communication entitled "Solubility as applied to Urine, and the Theory of Gout." He said that there were two kinds of molecules in urine: (1) non-ionised, represented in normal urine chiefly by urea and kreatinin, in pathological urines by sugars and proteids; and (2) ionised—i.e., dissociated molecules—viz., the ordinary salts of the urine. Attention was drawn to the rules for solubility of the classes of urinary salts, chlorides, phosphates, &c., and the bearing of these rules upon clinical phenomena. In respect to the uric acid theory of gout Dr. Smith entirely associated himself with those who felt convinced that this popular theory was inadequate and, what was worse, misleading in practice. Uric acid, *quoad* physiology and pathology, never behaved otherwise than as a monobasic acid. According to the careful researches of His and Paul the solubility of uric acid in water at 18° C. was 1 in 40,000, a much lower estimate than that usually accepted. Dr. Smith pleaded for a wider and more catholic conception of gout than that popularly adopted. They were still ignorant of the true pathology of gout and, in respect of dietetics, when they enjoined their patients to take freely such foods as milk, cream, and cheese, which were almost free from purin bodies, and to be sparing of food which contained a large amount of purin bodies—e.g., meats, thymus, and pancreas—they embodied almost all that there was to be said.—Professor Little, in discussing the paper, referred to the belief in the uric acid theory of gout so firmly fixed in the lay mind.—Dr. R. Travers Smith said that it was hard to reconcile some obscure alimentary toxin as the cause of gout with the hereditary character often shown by the disease, and with the fact that gout in females was rare till after the menopause, though there were the same dietetic errors before as after.—Dr. E. H. Bennett also spoke.—Dr. W. R. Dawson read a paper entitled "Notes on a Year's Asylum Work." He dwelt chiefly on hereditary predisposition, which he believed to be greater than the usually accepted average, on cases of dementia præcox, and on the atropine treatment for alcoholism.—The paper was discused by Dr. Travers Smith and Dr. T. P. C. Kirkpatrick.

ÆSCULAPIAN SOCIETY.—A meeting of this society was held on Nov. 17th, Mr. W. Campbell McDonnell, the President, being in the chair.—Dr. B. G. Morison,

[1] Glasgow Medical Journal, October, 1905.

Curator of the Museum, gave a demonstration of the following pathological specimens:—(1) Skin Excrescences composed mainly of Sebaceous Matter; (2) Phosphorus Necrosis of the Jaw; (3) Skeleton of an Anencephalic Fœtus; (4) Littré's or Diverticular Hernia; (5) Perforating Gastric Ulcer; (6) Perforating Typhoid Ulcer; (7) Gall-bladder packed full of Gall-stones; (8) Tuberculous Ulceration of the Larynx; (9) Heart showing Small Aortic Aneurysm perforating into the Pulmonary Artery; (10) Heart with Rupture of the Anterior Wall of the Left Ventricle (Fatty Spot) in an aged man; (11) Aortic Valvular Disease and Small Aneurysm at one Valve Segment; and (12) Ovarian Dermoid strangulated by Small Band of Omentum round the Neck.—The President read notes of a case of Respiratory Failure in a child with Temporary Recovery. One morning a healthy male child, aged two months, was seen for slight bronchitis. In the forenoon he had an attack of respiratory failure and was apparently dead, the only sign of life being the beating of the heart. Artificial respiration for half an hour and injection of brandy caused temporary recovery. A second attack occurred in the afternoon with temporary recovery, but a third attack during the night proved fatal. There seemed to be no reason for the fatal respiratory failure. —Dr. David Ross showed a woman, aged 31 years, with a Firm, Round, Smooth Tumour, situated superficially in the left hypochondrium. Various suggestions were made as to its nature but an exploratory laparotomy was advised to decide the diagnosis.

Reviews and Notices of Books.

Military Hygiene. By Lieutenant-Colonel ROBERT CALDWELL, R.A.M.C., F.R.C.S. Eng., D.P.H. R.C.P.S. Edin. and Glasg. London: Baillière, Tindall, and Cox. 1905. Pp. 416. Price 10*s.* 6*d.*

THE officers of the Royal Army Medical Corps already owe a debt of gratitude to Lieutenant-Colonel R. Caldwell for the publication of his Martin prize essay on "The Prevention of Disease in Armies in the Field"; we have now the pleasure of reviewing his work on "Military Hygiene." Such a treatise as he has produced will be of great value to his brother officers who since the classic work by the late Professor Edmund Parkes has been re-edited out of existence have had no concise and portable guide to help them.

The author first deals with the work of the microbe and he is here evidently of the opinion that with the environment of a campaign germs which under normal conditions are innocent are capable of becoming enemies of the deadliest description. The chapter on Enteric Fever is one of the most valuable in the work; Colonel Caldwell brings forward evidence to show the possibility of the evolution of the enteric germ within the body without any traceable assistance from external conditions likely to affect a community and attention is drawn to the need of constant vigilance on the part of medical officers in regard to those conditions, particularly food, which are likely to produce morbid changes in the intestinal contents. Another more potent cause is found in the prolonged occupation of camping grounds. This part of the subject is aptly illustrated by the author's personal experience in the late South African campaign. With respect to this disease the surgeon should be ever on the look-out for its inception which is heralded by the advent of fever of an anomalous type, lasting a few days and commonly accompanied by diarrhœa, conditions which have usually been returned as "simple continued fever." Colonel Caldwell sums up his conclusions by holding that enteric fever is caused by the most virulent microbic forms, in all probability descendants of a common ancestor of intestinal origin the vitality of which in soil is intimately connected with the presence of an organic pabulum, and hence he shows that the chief preventive is to be found in the efficient disposal of organic filth. With regard to preventive inoculation, he holds from the evidence given that this measure certainly diminishes the case mortality.

Dysentery and diarrhœa are next considered and illustrated by the facts in connexion with their occurrence in the Nile Expeditionary Force of 1885 and the Natal campaign of 1899–1900. Pollution of the soil, errors in diet, and many forms of intestinal disturbance are evoking factors. The influence of chill and exposure is drawn attention to. As preventive measures, the author holds that the patients should be isolated if possible and the excreta destroyed, the latter measure being of exceptional importance. The chapter on malaria is thoroughly up to date and emphasis is laid on the prevention of this disease by protection against the anopheles. The main measures for this consist in the draining of malarious regions, the application of kerosene oil to collections of stagnant water, the use of mosquito curtains where punkahs are unknown, wire gauze doors and windows, and the prophylactic use of quinine.

An exposition on plague next follows. As sources of mischief in India followers' huts, with their dirt, overcrowding, and foul air, rats, squirrels, and the means common in that country of the disposal of the dead are enumerated; it is shown that the disease there is inseparably bound up with the habits and customs of the people, whose ignorance, poverty, caste prejudices, and religious ceremonies all combine to make the task of effectually dealing with the disease impossible at present. The subject of pneumonia is ably handled and the various conditions calling it forth, such as foul air, overcrowding, dust, and defective drainage, are pointed out. Lieutenant-Colonel Robinson's classification into simple sporadic, infectious, and pythogenic is spoken of with approval; the sputa and excreta are recommended to be destroyed and the usual means of disinfection put in force. With reference to this latter injunction, we may recall to mind an extensive epidemic at Umballa, which was only stayed by the men being transferred to tents whilst their lines were thoroughly disinfected.

After some remarks on contagious ophthalmia, dengue, and jaundice, the author treats of cholera. He shows how it is conveyed from native bazaars by native cooks and others, by undetected cases in the followers' lines, by apparently healthy persons, by flies, by swimming baths, and by water, uncooked vegetables, milk, and infected rags. He has had no personal experience of prophylactic injection but states that statistics prove their value. In the chapter on Malta fever Colonel Caldwell shows the objection to its name, inasmuch as it occurs undoubtedly in other places besides the Mediterranean port. Attention is drawn to the work of the Commission appointed by the Admiralty, War Office, and the Civil Government of Malta in connexion with the elucidation of this disease. A very suggestive chapter follows on barrack sore-throat, after which the subject of animal parasites is entered upon and here we find discussed the bilharzia hæmatobia, the ankylostoma duodenale—the account of which is thoroughly up to date, as it embraces most fully the views of Professor Looss and Dr. Schaudinn—the rhabdonema intestinale, the dracunculus Medinensis, the distomum Ringeri, the filaria sanguinis hominis, tapeworms, the trichina spiralis, the organisms of sleeping sickness, and kala-azar. The importance of external parasites is also shown by the possibility of their presence during a war becoming a serious factor in the production of sickness.

In the chapter on water Lieutenant-Colonel Caldwell details first the main sources of supply and here we note some apposite precautions necessary for the protection of wells in India; then the collection, distribution, and purification of water are comprehensively dilated upon. In speaking of the water-supply in barracks in India the author notes

the serious defect in sanitation caused by its not being laid on to these buildings, as even where an excellent supply is furnished by stand-pipes the good effect is largely nullified by its carriage in the dirty "mussacks" of the bheesty. The diseases due to water are then considered. Lastly, the important subject of water on service receives attention. The author considers that attempts at sterilisation with chemicals are undesirable; that heat when applicable is the most satisfactory method of treating the water; and that the Berkefeld filter gives excellent results if the supply of candles is sufficient, the candles being sterilised three times weekly, as Horrocks has shown that the enteric bacillus can grow through the candle in from four to 11 days. The subject of "air" is next dealt with. That of food follows, and there is a good account of the admirably managed milk dairies in certain parts of India. In the chapter on clothing the advantage to be derived by lining the helmet with red, and so obviating to a great extent the injurious influence of the sun's rays, is not mentioned, otherwise this section contains all the essentials of the soldier's dress.

We have not space to enter further into the remaining subjects of this valuable work, except to draw attention to the excellent chapter on "routine duties." The author expresses a hope in his preface that it may be of use to "junior officers." In our opinion no more helpful chapter has ever been written. In concluding our notice of this book we heartily congratulate the author on its production; it deserves to become a favourite text-book and vade-mecum on the subject with the officers of the Royal Army Medical Corps and Indian Medical Service.

Radiotherapy in Skin Disease. By Dr. J. BELOT. Translated by W. DEANE BUTCHER, M.R.C.S. Eng. London: Rebman, Limited. 1905. Pp. 463. Price 17*s.* net.

RADIOTHERAPY, like every new departure in treatment, has suffered very much from empiricism and the veritable flood of literature which has been poured out upon the subject has done little but retard progress. Observers have differed as to the relative value of "hard" and "soft" tubes, currents of different strengths have been used, some operators favoured exposures of 30 seconds, while others gave half an hour or more, and the results reported naturally caused confusion. The difficulty lay in the absence of any means by which the actual dose of the x rays administered could be measured and therefore no proper comparison could be made of the procedure of different observers. This difficulty has been removed to a large extent by the introduction of certain instruments of precision. By Benoist's apparatus the penetration of tubes can be compared, the spark gap is now accurately measured, a milliampèremeter is placed in the secondary circuit, and by Holsknecht's chromoradiometer and the pastilles of Sabouraud and Noiré the quantity of rays emitted from a tube can be determined with something like accuracy. In the work before us Dr. Belot gives us not only an admirable review of the work of others, in itself a difficult task, but also a careful scientific record of his own practice in the electro-therapeutic department attached to the clinic of Dr. Brocq at the Broca Hospital in Paris. Theoretical considerations receive due recognition but the great value of the work lies in the fact that in the notes of his cases Dr. Belot has given exact measurements and we have as a result a text-book on radiotherapy recording dosage of the x rays in terms which can be compared and controlled by other observers. The enormous advantage of this is at once apparent. The technique is carefully explained and admirable illustrations are given of the apparatus. Dr. Belot aims at getting his results with as few exposures as possible and this can be done with safety only when accurate measurement can be made. That there is such a thing as individual idiosyncrasy is not denied and that certain parts of the body react more easily than others is recognised but dangerous burns can be avoided with something like certainty with the use of the instruments mentioned. In this Dr. Belot is in agreement with British workers who have had the largest experience. The book covers a wide field and it is difficult to enumerate the subjects treated, for the author has included references to observers everywhere. Specially valuable chapters discuss the use of the x rays in the treatment of parasitic diseases of the hair, for the relief of pruritus, and in lupus and other diseases of the skin due to micro-organisms. Perhaps the most interesting sections are those in which the resolvent action of the rays on neoplasms, innocent and malignant, is discussed. The cases are fully recorded and many are illustrated by reproductions of photographs. Dr. Belot's book is already well known as a record of sound work to those who interest themselves in this branch of medicine and Mr. Deane Butcher's translation presents it in a form which we feel sure will be widely appreciated. The very full bibliography will be found of great value to all interested in radiotherapy.

Essentials of Medical Electricity. By E. REGINALD MORTON, M.D., C.M. Toronto, &c., medical officer in charge of the Electrical Department, London Hospital. London: Henry Kimpton. 1905. Crown octavo, pp. 192, with 70 illustrations and 11 plates. Price 4*s.* 6*d.* net.

THOSE who wish to learn something of modern electro-therapeutics will find in this little book an excellent introduction to the subject. Dr. Morton's experience as medical officer in charge of the electrical department at the London Hospital enables him to write with authority and the subject-matter of his book is handled in a practical manner. In nine chapters the reader is introduced to the domain of electricity in its medical applications. Simple directions are given for the management of batteries and of electric lighting circuits as sources of current for electrical treatment and testing. The diagrams drawn to illustrate the various forms of interrupted currents are decidedly useful and the author rightly insists upon the advantages of currents mechanically interrupted by means of a revolving commutator after Leduc's method when accurate work has to be done. A well-designed instrument for producing these currents is described and illustrated. The sections dealing with the current waves of the induction coil seem to be somewhat obscure but the subject is a difficult one. The paragraphs relating to treatment are concise and practical. We note a few misprints here and there which will doubtless be remedied in a future edition and we think that a chapter on x ray therapeutics could be added with advantage, but as it stands Dr. Morton's book will certainly supply a want.

Die Krankheiten der Oberen Luftwege. Dritter Teil. *Die Krankheiten des Kehlkopfes und der Luftröhre.* (*The Diseases of the Upper Air Passages.* Third Part. *The Diseases of the Larynx and Trachea.*) By Professor Dr. OTTOKAR CHIARI, Director of the Clinical Hospital for Diseases of the Larynx and Nose in the University of Vienna. With 265 illustrations. Leipsic and Vienna: Franz Deuticke. 1905. Pp. 394. Price 10 Marks.

WE welcome the appearance of the third part of Professor Chiari's book which is devoted to Diseases of the Larynx and the Trachea. The first 55 pages contain a description of the anatomy and physiology of these parts, without, however, presenting any original features. Chapter III. is devoted to general pathology and deserves the attention of all who are interested in this department of practice. In it all the various symptoms that may occur in any disease of the larynx and trachea are considered seriatim and briefly analysed, the nervous symptoms being also passed in review,

including the various paralyses of the muscles of the larynx, together with the conditions found in some of the general diseases in which the larynx becomes secondarily affected or in which the laryngeal affection is an integral part of the disease. Chapter IV. deals with the clinical examination of the larynx, trachea, and bronchi, the means of demonstrating these conditions to others not being omitted. Chapter V. gives the general therapy of laryngeal, tracheal, and bronchial affections, both the local and general treatment advisable being described with great attention to detail, as well as the various methods of applying the local remedies, together with the use and employment of the instruments necessary in the treatment of diseases of these parts. Catarrhal conditions of the parts under consideration are next referred to, first the acute and then the chronic forms, together—and this applies to all the remaining chapters—with the prognosis, diagnosis, and appropriate treatment. Chapter VII. contains a consideration of the inflammatory affections and Chapter VIII. consists of a detailed description of infectious diseases, including syphilis and tuberculosis. Professor Chiari states that out of 24,410 patients who attended his out-patient clinic the proportion of cases of laryngeal tuberculosis was no less than 2½ per cent.; we have not examined the comparative statistics of the subject but our general impression is that the corresponding proportion observed in England is lower than this. Diphtheria is considered at considerable length and scleroma of the larynx and trachea receives a very detailed and full description, including much valuable and instructive matter. Chapter IX. is devoted to such diseases of the larynx and lower air passages as are not connected with, or derived from, infectious diseases. These include herpes, pseudo-herpes, aphthæ, pemphigus, the lichens, erythema, impetigo, lupus, drug rashes, and angio-neurotic œdema. In Chapter X. the strictures and anomalies of the parts under consideration are discussed. In Chapter XI. foreign bodies, with their diagnosis and treatment, are dealt with. Chapter XII. contains a description of new growths, both simple and malignant, with details of their diagnosis and treatment.

Professor Chiari has produced an excellent example of a carefully written treatise by an author possessed of much experience, both clinical and tutorial. As his literary style is singularly clear and the construction of the book is excellent it will be found an admirable work of reference for those already well acquainted with the subject, while it will at the same time prove a valuable text-book, easy of comprehension, to those commencing to study the special diseases of the larynx and the trachea.

LIBRARY TABLE.

The Apsley Cookery Book. By Mrs. JOHN J. WEBSTER and Mrs. F. W. JESSOP. London: J. and A. Churchill. 1905. Pp. 235. Price 3*s.* 6*d.*—In the days of our great-grandfathers a well-known patriotic song proclaimed that the greatness of England depended, to some extent, on roast beef, but we, their descendants, have found that the too liberal use of animal food promotes the formation of uric acid in the human body and may by slow degrees impair the health. It has also been discovered of late years that certain nitrogenous compounds, congeners of uric acid, some of which were first found in animal juices, occur in leguminous seeds, such as peas, beans, and lentils, in tea and coffee, and in the yelk of eggs. These substances have been comprehensively styled by chemists purin bodies, from their assumed relationship to the hypothetical radical purin, the formula of which is C_5N_4. In the treatment of diseases attributable to an accumulation of uric acid in the system it is obviously desirable to limit the amount of nitrogenous aliment and a further refinement is to exclude all food products in which purin bodies occur with the object of securing what has been quaintly termed a "uric-acid-free" diet. The substantial basis of this fare is supplied by wheat flour, oatmeal, buckwheat, rice, maize, almonds and other nuts, potatoes, onions, green vegetables, fruit, milk, cheese, butter, and white of egg. This is not a complete list of the raw materials but it is fairly representative and those for whom such a dietary is recommended must feel grateful to Mrs. Webster and Mrs. Jessop for showing in these pages how to prepare an immense variety of palatable dishes. A series of menus for breakfast, lunch, and dinner is appended; the first on the list of these dinners consists of tomato soup, vegetable marrow (stuffed), new potatoes, rice and almond moulds, stewed greengages, and cheese straws. Between this and the repasts which attract the average diner-out there is obviously a great gulf fixed. On the subject of oatmeal porridge, which is an excellent thing at breakfast time for those who like it, we do not entirely agree with what is stated here. In the first place, for some incomprehensible reason, it is included among sauces, and in the next place, if made as recommended there is some risk that the result may be a kind of gruel and not porridge. Much information on the chemical side of the question and on the approximate estimation of purin bodies in the urine will be found in the second edition of Dr. I. Walker Hall's book on the subject.

The Bibliography of the "Religio Medici." By CHARLES WILLIAMS, F.R.C.S. Edin. Norwich. 1905. Pp. 15.—The great popularity of Sir Thomas Browne's "Religio Medici" is shown by the fact that 23 editions of it appeared during the author's lifetime, 13 of these being in English, seven in Latin, one in Dutch, one in French, and one in German. He died in 1682 and from that year to 1905 there have been 32 editions in English, of which four were published in America. In the pamphlet now before us Mr. Williams gives an interesting account of these various issues, whether published as monographs or contained in collective editions of the author's works. A loose leaf inserted among the pages of the pamphlet contains a list of the editions of the "Religio Medici" and other works by Sir Thomas Browne exhibited by Mr. Williams at Blackfriars Hall, Norwich, on the occasion of the recent tercentenary described in THE LANCET of Oct. 28th.

Christmas and New Year Cards.—A selection of cards, to be used in the cordial greetings of these festivals, have been received from Messrs. Raphael Tuck and Son, of Moorfields, London, E.C. The productions of Messrs. Tuck and Son are now so well known in every corner of the globe, that it will suffice to say that the specimens sent to us maintain the usual high standard of excellence, both in design and in execution.

JOURNALS AND MAGAZINES.

Ophthalmology. Published by H. v. WÜRDEMANN, M.D., Managing Editor, aided by a large editorial staff. Vol. II., No. 1, October, 1905. Editorial and publishing office: 105, Grand-avenue, Milwaukee, Wisconsin, U.S.A. Pp. 190. Price 6*s.*—This part of *Ophthalmology* contains seven original articles by American ophthalmologists and a very large number of abstracts taken from foreign journals with a few short reviews. The original articles are: (1) by Alexander Duane, M.D., of New York, on Paralysis of Divergence; (2) by W. Zentmayer, M.D., of Philadelphia, on Paralysis of the Upward Movement of both Eyes; (3) by J. Morrison Ray, M.D., of Louisville, and F. H. Verhoeff, M.D., of Boston, a Report of Two Cases of Tumours of the Conjunctiva and Cornea; (4) by Richard Hale Johnston, M.D., of Baltimore, on Primary Melanotic Sarcoma of the Eyelids; (5) by H. v. Würdemann, M.D., of Milwaukee, on Primary Melanotic Sarcoma of the Eyelid; (6) Ophthalmology in Japan, by Dr. Mitsiyasu Inouye, of Tokio, translated by H. v. Würdemann, M.D., from which it

appears that Japan has three medical faculties, one higher medical school, and nine general medical schools. The Japanese have but one academic medical degree which is called Hakushi, corresponding to professor in the West. There are two other denominations, one named Gakushi, which is equivalent to doctor, and Tokugyoshi, which is a lower order. There are ten Hakushis, or professors, in ophthalmic practice, and in addition to those belonging to the other two orders there is a much larger number of non-titled medicine men than of all of the other classes together. The last article in the journal is by Edmond E. Blaauw, M.D., of Buffalo, N.Y., and is devoted to an account of the Anatomy of the Eye according to the Ancients.

The Journal of Physiology. Edited by Sir MICHAEL FOSTER, K.C.B., F.R.S., and J. N. LANGLEY, Sc.D., F.R.S. Vol. XXXIII., No. 2, Nov. 9th, 1905. London: C. F. Clay. Pp. 93. Price 6*s.*—The contents of this number are:—1. The Ereptic Power of the Tissues as a Measure of Functional Capacity, by H. M. Vernon, M.D. Oxon. As in the previous experiments of the author the ereptic or peptone hydrolysing power of the tissues was found to be most strongly marked in the kidney and, though in much less quantity, in the liver. The ferment increases in the tissues of the guinea-pig, the rabbit, and the cat during intra-uterine development and for the first few days after birth but subsequently remains constant. It is not greatly affected by diet, nor is it equally distributed through the intestinal mucous membrane. It is, however, reduced during hibernation and by disease, especially if accompanied by wasting. 2. On the Globulin of "Albuminous" Urine, by Alfred W. Sikes, M.D. Lond. Dr. Sikes finds that an increase of globulin takes place and a decrease of albumin in urine on standing, neither of which is probably due to bacterial decomposition of the albumin. Warmth and alkalinity augment the increase of globulin. 3. The Physiological Effects of Peptone and Allied Products; Part VII., the Metabolism of Arginin, by W. H. Thompson, M.D. R.U.I. Arginin is an intermediate product of the metabolism of proteids and is eliminated from the system when ingested or injected subcutaneously in the form of urea, partly at once and partly more slowly owing to the ornithin, which is also a product of the decomposition of the arginin, undergoing a process of de-amidation and subsequent synthesis of the ammonia into urea. 4. On the Gradation of Activity in a Skeletal Muscle-fibre, by Keith Lucas. Mr. Lucas finds that if a very small number of the skeletal muscle fibres (cutaneus dorsi) of the frog be stimulated with a series of increasing stimuli their contraction increases to its maximum in a few well-defined steps. 5. The Contractile Mechanism of the Gall-bladder and its Extrinsic Nervous Control, by F. A. Bainbridge and H. H. Dale, with 18 figures in the text. These experimenters find that the gall-bladder shows rhythmic variations in volume. Stimulation of the sympathetic causes relaxation of the muscular tissue. The vagus contains some motor fibres which are distributed to it. Bile salt causes relaxation. 6. The Paralysis of Involuntary Muscle, Part II., by H. K. Anderson, M.D. Cantab., with eight figures in the text. This article is chiefly devoted to the study of the "paradoxical" contraction of the sphincter pupillæ that follows removal of the superior cervical ganglion.

Caledonian Medical Journal.—The opening article of the October number is the address which Dr. William Stewart of Bacup, Lancashire, President of the Caledonian Medical Society, delivered at the annual meeting of the society held in Manchester on June 23rd. The title of the address was "Early Scandinavian or Gothic Influence in Caledonia" and the author's opinion was that the primitive population of Scotland contained a large admixture of the descendants of Scandinavian immigrants who had arrived in the country long before the well-known Norse and Danish invasions. The society now consists of 231 members. The following office-bearers for 1906 were elected at the annual meeting: President: Dr. W. A. Mackintosh. Vice-President: Dr. A. Little. Editors of Journal: Dr. W. A. Macnaughton and Dr. W. A. Mackintosh. Secretary: Dr. S. R. Macphail (Derby).

New Inventions.

A NEW TRACHEOTOMY DILATOR.

THE requirements of a satisfactory tracheotomy dilator are that it should be easy of introduction, that it should remain in position when once introduced, and that it should not impede the passage of the tracheotomy tube. Messrs. White and Wright, 93, Renshaw-street, Liverpool, have made an instrument at my suggestion which I have found meets these requirements. As shown in the illustration,

it is a two-bladed instrument with curved and beaked extremities. It is introduced closed alongside the knife and as it is opened in the wound the curved beak makes displacement of it practically impossible if it is steadied by slight traction on the handles. The shape of the beak is also designed so that the handle and blades may be depressed downwards and brought out of the way of the tube without slipping; this I consider the most important advantage of the instrument, the tube being introduced with the greatest ease, which is by no means always the case with tracheotomy dilators of other patterns. A rack makes the instrument self-retaining when opened in the wound and the near handle is shaped to fit the position of the thumb in the act of introduction.

KEITH W. MONSARRAT, F.R.C.S. Edin.,
Surgeon to the David Lewis Northern Hospital, Liverpool.

THE "ALLENBURYS" TEAT.

THE advantages of the "Allenburys" Feeder for infants are well known. The bottle is provided at one end with an easily removeable rubber air inlet in addition to the opening at the other over which the teat is fastened. There is thus every facility given for thoroughly cleansing the bottle when required with a stream of water. The air inlet consists of a rubber plug provided with a slit which admits air as fast as the food is sucked out. This arrangement prevents the child from sucking in bubbles of air with the food and makes the effort to suck easy. A further improvement has been made with the teat which in its modern form it is practically impossible for the child to detach. The ease with which the teat comes off the feeding-bottle is often a source of annoyance and inconvenience. This drawback has been overcome in the Allenburys teat by providing on that part of the teat which slips on to the bottle a stout rubber collar which serves as a kind of spring holding firmly on to the neck of the bottle. Messrs. Allen and Hanburys, of Bethnal Green, London, E., are the designers.

SUPERANNUATION OF POOR-LAW MEDICAL OFFICERS.—At a meeting of the Bideford (Devon) board of guardians held on Nov. 7th a district medical officer resigned his appointment but stated that he should like to retain the post of public vaccinator if this would not affect his superannuation allowance. In reply he was informed that the Local Government Board had recently decided that before any superannuation allowance could be given to any officer all the appointments held by such officer under the Board must be resigned

THE LANCET.

LONDON: SATURDAY, NOVEMBER 25, 1905.

Philanthropy and its Developments.

THE present position of the United Kingdom with reference to the relief of distress is such as to call for the thoughtful consideration of all the more prosperous classes of the community and, in an especial degree, for that of the medical profession, whose members are brought into close relation with poverty by much of their daily work and have for many generations been active both in relieving it themselves and in promoting its relief by others. In such circumstances our readers will thank us for directing their attention to a "History of English Philanthropy," by Mr. KIRKMAN GRAY,[1] which describes, within the compass of 300 octavo pages, the various efforts which were made towards the organisation of charity from the dissolution of the monasteries to the taking of the first census at the beginning of the nineteenth century. Mr. GRAY makes it clear that the same problems which occupy our minds to-day were constantly present to those of our forefathers, and he traces in much interesting detail the efforts that were made to deal with them and the occasional predominance now of this and now of that principle of action. It may, perhaps, be doubted how far the name of "philanthropy" has always been applicable to these efforts, or at least, how far the poor themselves were the persons beloved by the generous bestowers, certain of whom, in all probability, may be supposed to have had an eye to the main chance and to have been influenced, sometimes by an expectation of laying up for themselves riches which the moth and dust would not corrupt, and sometimes by a desire for the promotion of social order as a direct source of national and individual prosperity. The words "not because he cared for the poor" might, no doubt, be written across the descriptions of many works by which the poor were expected to benefit; but the investigation of motives, whether in the days of our ancestors or among our contemporaries, would be a research beset with difficulties, and more than likely to lead those who engaged in it to conclusions of which some might be erroneous and of which many would possibly be uncharitable. It is better to confine ourselves to the actual experience of organisations professing to be philanthropic and to inquire what lessons may be learnt, either from their successes or from their failures, which may in some degree serve for our own enlightenment amid the perplexities of to-day. It would be scarcely possible to name a form of charity, either actual or projected, among ourselves, of which at least the nucleus may not be discovered in the past, or as to which some information of value will not reward the patient inquirer into history.

From the commencement to the close of Mr. GRAY's inquiries, "want of employment" appears as the most constant explanation of the poverty which has required the help of the charitable; and the causes of the want do not vary much among successive generations. Changes in the form of popular industries, such, for instance, as the gathering together of many small agricultural holdings into a few larger ones, upon which less labour was required, or the conversion of arable land into pasture, or the substitution of machinery for manual work, have been the causes commonly assigned for phenomena of constant recurrence; and the only novelty in the conditions has been brought about by modern facilities for locomotion, which have enabled the unemployed to flock to the great centres of population, where there may at times have been room and work for some of them, but where the great majority have been left destitute, with no one at hand who could bear testimony to their former characters or capacities. The extent to which the want of employment pressed upon the England of Tudor times is sufficiently displayed by the severity of the laws against vagabondage which were then enacted and enforced; and it is probable that the pressure continued with very little abatement until it was diminished by the Civil War which would at once afford opportunities of soldiering to a great array of industrial wastrels and would conceal the remainder beneath the general disquietude of the times. In the same way, during the great Napoleonic wars, the number of men absorbed by the army and by the fleet, and the large area of land brought under cultivation by reason of the high price of corn, would tend to the diminution of the number of the unemployed, while a slackening of popular sympathy with them would follow from the general consciousness that work was to be found by everybody who really desired to obtain it. Our recent war in South Africa was not sufficiently prolonged to produce any analogous effects and the unemployed have once more begun to accumulate in quite formidable numbers. They have come into the great towns in constantly increasing proportions, their ranks are being reinforced by a large addition of general and incorrigible vagabondage, and there is reasonable fear, having regard to the present political situation, that irresponsible persons may strive to make capital out of the distress for the promotion of their personal ends and ambitions. We are thus brought face to face with evils for which curative treatment is urgently required, and with conditions in which members of the medical profession, accustomed to keep their heads in all emergencies, and better acquainted than almost any other class of persons with the differences between forms of relief which are only transitory in their operation and forms from which permanent benefit may be expected, may render great services to the community. They may bring their intimate personal knowledge of facts and of individuals to bear upon the actual conditions of poverty and upon the means by which it may be alleviated. They will do this with the more certainty if they also possess themselves of the historical information which Mr. GRAY has been at pains to provide, and thus

[1] London: P. S. King and Son, Orchard House, Westminster. Price 2s. 6d. net.

enable themselves to reinforce the teachings of knowledge by those which are to be derived from experience.

Perhaps the one fact which is chiefly brought into prominence by careful observation of the distress now existing around us, and by comparison between the conditions of the present and of the past, is that the unemployed poor are roughly divisible into two great bodies, for which totally different treatment is required. There are those who would be industrious if they could and there are those who contentedly resign themselves to idleness and to dependence. There are the helpless victims of a diminution in the demand for the only industry which they have learned to practise and there are the systematic idlers whom nobody will employ except in times of pressure. The great object of the former class is, or should be, to remain where they are known and where their characters will help them; the great object of the latter is to seek alms where they are unknown and where their record will not tend to their disadvantage. Hence arises the value of the provision embodied in Mr. LONG'S first suggestion for a measure of national relief; the provision that nothing beyond the strict requirements of the Poor-law should be done for men who had wandered away from the localities in which they were known, but that every endeavour should be made to preserve the homes and the self-respect of those who remained where they were accustomed to find employers. There will be no lack of funds for the purposes of relief if the public can be once assured that their contributions are not expended in aggravating the very evils which they are designed to cure; but this assurance cannot be obtained prior to the establishment, in every locality in which distress is urgent, of a committee or other body willing to devote time and care to the investigation of the histories of applicants—to the definite separation, that is, of the sheep from the goats. In the meanwhile, the question is one which should not be of interest to so-called philanthropists alone but also, and perhaps especially, to the great organisations of labour. The British workman himself, speaking generally, is very largely responsible for a diminution of employment and may reasonably be called upon to endeavour to correct some of the mischief which he has done. As for the wastrels, the men who want wages without work, the only plan of dealing with them is the penal labour colony. Compulsory work for those who will not work voluntarily, together with separation of the sexes, might afford a possible solution of the problem presented by the unemployable, but the difficulties in organising such a scheme would be very great in this country and could only be overcome if a strong social party were convinced of its practical and moral merits.

The Present Decline of Art in Medicine.

IN an admirable and a suggestive address on the Present Decline of Art in Medicine recently delivered before the Abernethian Society at St. Bartholomew's Hospital Sir DYCE DUCKWORTH sounds a timely note of warning. He points to the great advances made in recent years in the collateral medical sciences and to the influence which these advances have exerted on the theory and practice of medicine and on the educational course which the student of to-day has to pursue. He then asks whether these changes have resulted in the production of a type of practitioner more skilful than his predecessors, who underwent a shorter and less scientific curriculum a quarter of a century ago, and comes to the conclusion that "the finished products of the schools of to-day are at first but slenderly equipped to minister to the sick, to prescribe appropriately, or to manage their patients." Sir DYCE DUCKWORTH has had as he himself says, unusual opportunities of observing the results of the modern scheme of medical education and there will probably be few who would deny that he is correct in his contention that the art of medicine has been much neglected and that it has materially declined. Indeed, a brief comparison of almost any text-book of medicine of to-day with one of 30 or 40 years ago will soon afford convincing proof of this, for in the latter we seem to deal with individual patients and their actual symptoms, in the former with generalisations, principles, and abstractions. It is most important clearly to realise that medicine is not an abstract or an exact science but that in practice it is an applied art, having its foundations in certain collateral sciences which may be both abstract and exact. The actual practice of medicine deals with processes which may be variously expressed in different individua's, though produced by an identical cause; it therefore demands a knowledge of the variations of disease and a study of the individual characteristics of patients—in other words, the ability to apply the general to the particular. LUCIAN[1] points out with truly Attic piquancy the incapacity of our art to deal by identical methods with cases apparently alike. A son being disinherited studies medicine and later when his father goes mad he treats him successfully after he has been pronounced incurable by other physicians. As a result the son is reinstated but when shortly afterwards his stepmother also goes mad and he is asked by his father to cure her he declares his inability to do so and is again disinherited. In his defence LUCIAN refers to the influence exerted by sex, temperament, habit, and other conditions on the nature and course of a disease and on its prognosis and treatment.

Sir DYCE DUCKWORTH is of opinion that the student spends too long a time in the laboratories and too short a time in the wards and out-patient department in the study of actual medicine and surgery. It has been suggested in some quarters that an additional year of medical study may be required, giving a course of six years, as in some continental countries. We need not now discuss this suggestion but we think that what is wanted at the present time is a critical examination of the methods of teaching, especially by the faculties and boards of studies of universities and by the examining bodies, with a view to secure a greater coördination of medical teaching with the utilitarian features more strongly emphasised. Instruction in the various subjects of the medical course tends to be too detached and perhaps too specialised, and it is open to question whether the student gets sufficient opportunity of applying the abstract knowledge which he acquires to the particular case of individual patients or whether the medical common sense—or

[1] The Works of Lucian of Samosata, translated . W. Fowler and F. G. Fowler, vol. ii., Oxford, 1905

mens medica as Sir DYCE DUCKWORTH calls it—is sufficiently trained in our schools. The consideration of minor ailments is much neglected and it is the study of the rare and of the obscure which too often attracts the student. What wonder, therefore, that the newly qualified practitioner, especially if he has not held a resident appointment, finds that he has much to learn when he embarks on practice. Primed with the latest laboratory lore he has, perhaps, to treat some slight indisposition which if he does not dismiss as neurotic he probably labels trivial and dismisses with scant consideration, giving at most a *placebo*. He has to learn in the exacting school of experience the true perspective of disease and, what is harder to acquire and equally useful, the rudiments of the patient's own perspective of his symptoms. There have been, indeed there are at present, many physicians who, steeped deep in scientific knowledge, have practised medicine with the enthusiasm of the true artist and such men afford the highest example to the student. It is enthusiasm, sympathy, and sound judgment in applying principles to the case of each individual which are necessary. The art of practice cannot be acquired from books or even in laboratories but only by long and careful study of individual patients. The scientific attitude of mind naturally tends towards a scepticism which requires proof for everything but in medicine we cannot afford to neglect the empiric remedies which have stood the test of experience even though we wait in vain for a scientific explanation of their actions.

Another phase of modern treatment which Sir DYCE DUCKWORTH condemns is the indiscriminate use of the various new and insufficiently investigated remedies, synthetic and otherwise, with which the market is constantly flooded. He refers with sarcasm to those who, neglecting the well-tried and approved remedies of the actions and uses of which we have definite knowledge for the latest product of the laboratory, labour under the mistaken notion that they are prosecuting research and are in the forefront of progress. Another feature of modern hospital work which Sir DYCE DUCKWORTH very rightly condemns is the tendency to depute much of the work in regard to the diagnosis and treatment to others since it only tends to produce a condition of incapacity and helplessness when the practitioner finds himself thrown on his own resources. The aim of all medical education should be not only to instruct the student what to do but also how to do it. Sir DYCE DUCKWORTH'S address cannot be too widely read or too earnestly studied, for it affords material for much thoughful consideration by practitioners, teachers, and students of medicine. In regard to medical education we may well ask if the broom of reform has not swept too clean or the pendulum of progress swung too far, and it behoves those responsible or the direction of medical education to inquire whether there is not room for improvement, even if it be necessary to lessen the time devoted to some subjects and to increase that set apart for clinical study. The practitioner and the student should also profit by the warning, since in the practice of medicine we must remember that the patients are not to be regarded as problems, except in so far as the diagnosis of their condition is concerned, but as sick and suffering individuals who consult the practitioner for relief and advice, and therefore in all conditions the human aspect of the problems of disease should be kept constantly in mind.

The Feeble-minded Criminal.

THE proper method of dealing with the rather indefinite category of individuals included under the term "feeble-minded" is a problem which for some time past has been forcing itself on public attention. In its more general aspects it forms, as our readers are aware, the specific matter of investigation at the hands of a Royal Commission now sitting; while particular phases of the question have been prominent in the numerous discussions regarding vagrancy, the unemployed, and other allied social problems which have recently occupied the columns of the daily papers. There is, therefore, a peculiar appositeness in the valuable and instructive remarks which the medical inspector of prisons devotes to the subject of the feeble-minded criminal in his last annual report already summarised in these columns.

Dr. H. SMALLEY has singled out for special consideration one particular category of the weak-minded offenders—those, namely, who by reason of their mental defect are incapable of conforming to ordinary penal discipline. At first sight this may seem a somewhat rude criterion by which to judge the degree of mental abnormality, but a very little reflection will suffice to show that though doubtless used in the first instance for purely practical ends, and without reference to the needs of scientific accuracy, such a test is nevertheless by no means lacking in a sound psychological basis. We may, in fact, look on the conditions of prison life in their bearing on conduct as an exaggerated, but simplified, version of the conditions of free life. In prison violations of discipline, faults of omission or commission, will obviously entail on the offender a retribution surer and swifter than is wont to follow on errors committed by the free citizen. And for this reason the connexion of ill-doing and suffering and of well-doing and the absence of suffering will ordinarily be plainer to the criminal in his dealings with penal discipline than in his dealings with the law; so that, while he may be incapable of the more elaborate and remote associations which are implied in even a very rudimentary conception of morality, he may be quite well able to see the advantages of compliance with rule in the prison environment, where the relation of conduct to its consequences is more immediately and clearly perceptible. It is therefore quite legitimate to regard the inability to reach this low standard, and to conform to the demands of penal discipline, as evidence of a definite and extreme degree of mental defect. It serves, in fact, as a line of demarcation which cuts off from the mass of weak-minded criminals a distinct group of whom we may affirm that they would be incapable of adaptation to any conditions of social environment, however favourable, and that they are therefore entirely unfit for free life. Since these individuals by reason of their actively or passively anti-social tendencies represent the most dangerous and troublesome

category of the weak-minded it is evident that a fuller knowledge of their origin and character, which may lead to efficient methods of protecting the community against their ill-doing, must be of very real interest and importance. From this point of view the observations of Dr. SMALLEY on the question are deserving of very serious consideration as the expression of a ripe and cautious judgment founded on wide experience. The weak-minded criminals of the type which we have indicated are, Dr. SMALLEY tells us, for the most part recidivists. Beginning their penal career at a relatively early age, generally about the period of adolescence, when they are forced to enter on the struggle for existence for which they are so heavily handicapped by their defective organisation, they continue through the rest of their lives to oscillate between the prison, the asylum, and the workhouse, with brief intervals of freedom, during which they can be more actively noxious. Ordinarily the offences which they commit are of a relatively trivial character, being, indeed, very often rather sins of social omission than acts really meriting the name of crime. This general rule, however, is subject to many and grave exceptions. The feebleness of mind which renders these defectives incapable of sustained effort and of due adaptation to environment drives them to parasitic ways of life, while it involves a lack of self-control which leaves their conduct at the mercy of every casual impulse of unusual intensity. An outburst of lust will provoke them to rape or bestiality, or an exaggerated sense of injury aroused by some trivial incident will impel them to wreak their vengeance in murder or arson.

The number of the criminal defectives of this lowest class is not, it would appear from the available records, very large. The official figures for the last three years put it at 1090, and this would probably include some instances in which the same individual was counted more than once. When it is further borne in mind that a not inconsiderable share of this total is made up of cases of senile and alcoholic dementia and other forms of enfeeblement which are rather inert and helpless than actively mischievous, it will be seen that the group may be reduced to even more moderate proportions. On this fact of their relatively small number, taken in conjunction with the extent and variety of their anti-social activities, Dr. SMALLEY is able to found a convincing argument in favour of dealing with these weak-minded offenders on special lines. The expense that would be incurred by their permanent detention in a suitable institution would, he points out, be covered, at least in part, by the saving of the cost now involved in repeatedly prosecuting them and maintaining them in prison. Moreover, it is possible that under a course of continuous and appropriate training which would develop whatever manual aptitudes they possess—and in many cases these aptitudes are considerable—they could be made to contribute in some measure to their own support. In any circumstances there can be no question as to the advantage that would accrue to the community from the substitution of such a scheme as Dr. SMALLEY suggests for the present system, which is not only expensive and cumbrous but which fails completely to secure what should be its first aim, the adequate protection of society.

Annotations.

"Ne quid nimis."

PROFESSIONAL RESPONSIBILITY IN CASES OF MENTAL UNSOUNDNESS.

THE care and management of individuals whose mental processes are abnormal but who do not necessarily at any time exhibit derangement of sufficient degree to call for seclusion, constitute one of the most difficult and delicate problems with which medical men have to deal. Since such persons commonly spring from neurotic stock, exhibiting a history of insanity or of disorders allied therewith, the duty of the parents—a duty which, it is to be hoped, is becoming more widely recognised—is to communicate to their medical adviser all information relating to their family history which it is in their power to give, in order that the tainted individual may from early childhood be safeguarded as far as possible against the risks to which he is exposed. Broadly speaking, the aim in such cases will be to provide for the child individual care and training, having due regard to the mental and physical aspects of education. The degree and kind of mental work and relaxation and of physical exercise have to be determined and a suitable teacher and playmates selected. It is not seldom advisable to remove such children from home care—where, by reason of mental instability on the part of a parent or relative, the environment is unfavourable—to family care as provided by competent strangers. Later will arise the question of selecting a suitable school where adequate individual attention can be relied upon and the requisite medical and other supervision can be exercised. The dangers associated with the development of the sexual instinct have to be reckoned with, for the neurotic individual at the age of puberty is prone to develop sexual malpractices. Solitude is unfavourable to such persons. The subsequent choice of a career will be largely determined by the general consideration that persons mentally unstable are best suited by occupations of a regular kind with all possible freedom from anxiety and responsibility—occupations, in brief, which involve a minimum of mental strain and allow ample opportunity for an outdoor existence. Unfortunately, the inordinate mental activity of many of these people renders such occupations irksome. The question of the marriage of psychopathic individuals is one upon which the advice of medical men is asked and is likely, with the increase of education, to be more widely sought. Probably such advice is at present asked mainly, if not wholly, from the point of view of the benefit of the individual, but we may assuredly with some confidence hope that in these matters the welfare of posterity will be a consideration of increasing importance. This is but a phase of the question of prophylaxis, and in all that pertains to the prevention of disease there cannot fail to be a growing tendency on the part of an intelligent public to recognise the authority and abide by the advice of the physician, for whom therefore the future should hold increasing influence and responsibility. It is also probable that medical authority will come to count for more in those medico-legal issues to which the actions of the mentally defective give rise, such actions as those to which the unhappy subject of the imperative idea, or the individual who illustrates one of the many phases of sexual perversion, is liable. It is inconceivable that the law should continue to regard as fully responsible the individual who, whilst his conduct is abnormal, can be shown to exhibit the outward and visible signs of defective development, in the shape of the so-called "stigmata" and of mensural deviations from a normal

standard, and whose history can be adduced as evidence that the stock from which he springs is degenerate. But the onus of proving this, the duty of securing by persistent representation and scientific demonstration that justice be done to these unfortunates, lies with the medical profession. A further illustration of the manner in which medical men may be brought into contact with persons whose mental balance is disturbed is furnished by those cases in which the ability of such individuals to control themselves or their affairs is called in question; and in dealing with these there is need for great circumspection. The Lunacy Law protects the medical man who acts in good faith and with reasonable care, but it is very necessary to afford no grounds for asserting negligence in these respects; more especially is it advisable to have at the time of the inquiry full personal knowledge, as distinct from mere communicated information, of the conduct and actions of the individual whom it is sought to deprive of his personal liberty or rights. The legal procedure of the "inquisition" applies to these cases and the law is set in motion by means of a petition presented commonly by the husband or wife or a near relative of the individual in question, supported by medical affidavits. In such inquiries the primary aim of the law is to secure the benefit and protection of the person who is the subject of the inquisition and it is therefore prudent for the medical man to take the same standpoint, since the interests of the affected individual are not always identical with those of his relatives, and are still less likely to be compatible with those of strangers. The latter may, in quite exceptional circumstances, be justified in intervening, but it would, as a rule, be imprudent to act in association with strangers in these circumstances.

SANITATION AND THE PANAMA CANAL.

IN the month of June we published a series of articles dealing with the sanitation of the Panama Canal as regards the period ending 1904. In the last article of the series the writer, Mr. John George Leigh, expressed his opinion that in the preliminary campaign against climate and disease the American authorities had sustained a regrettable repulse. He continued: "That they will eventually conquer is equally certain and the more decisive the victory is the more permanent should be its results." How true was this prophecy is shown by a letter which is published in the *Times* of Nov. 20th "From a Correspondent." This writer says that up to May of this year Colonel W. C. Gorgas, who had freed Havana from yellow fever, was almost helpless in the bonds of red tape. President Roosevelt thereupon on his own responsibility, without the leave of Congress, compelled the old Canal Commissioners to resign, filled their place with new men, and appointed as Governor of the Canal Zone Judge Charles E. Magoon with autocratic power. He arrived at the end of May, during which month there had been 38 cases of yellow fever. He found that many members of the American colony had fallen into a state of bravado and argued that the mosquito theory of transmission was contemptuous and that they would not obey the rules which had been formulated. They let themselves be bitten by mosquitoes and tore holes in the nettings or destroyed them. Governor Magoon promptly admitted that he was afraid of catching yellow fever and, moreover, he remarked that any non-immune person who professed to be not afraid was either a fool or a knave and should be treated as such. He also said that the mosquito theory was upheld by the best medical and surgical authorities and that therefore he believed in it and meant to enforce it. All window nettings were replaced and a proclamation was issued that anyone who removed or tore them should be severely punished. Every house in Panama was disinfected, stringent measures were taken for the early recognition of cases, and every inhabitant of the city was inspected by a physician once a day. Further, mosquito-breeding places were actively treated; all water tanks, cisterns, and the like were cleaned and covered in pending the completion of works for a water-supply which should do away with such cisterns. The city is now two-thirds sewered and the streets are being paved with vitrified bricks. Now for the results. In May there were, as has been said, 38 cases of yellow fever; in June this number had risen to 62. Then Governor Magoon's legislation and the health authorities' action began to show results and in July the number of cases sank to 42; in August there were 27, in September only six, and with this came the end of the yellow fever. The last case in Colon occurred on August 27th and the last in Panama on Sept. 14th. So certain are the authorities that the disease has been stamped out that a notice signed by Governor Magoon and Colonel Gorgas has been posted offering to any person not a member of the health department who shall notify a case of yellow fever in Panama, Colon, or the Canal Zone a sum of $50 in gold between the dates of Oct. 2nd and Dec. 1st, 1905. The letter from which we have quoted is extremely interesting both from a sanitary point of view and as showing what can be done by methods employed in a democratic country. If we had a Governor Magoon over here to deal with vaccination as he has done with yellow fever, small-pox would most likely be a thing of the past.

LONDON TRAFFIC.

THE proposed central traffic board for London when it comes into existence will find itself confronted with a task in comparison with which the labours of Sisyphus may be regarded as mere diversion. All thoughtful students of the subject are agreed that the real problem to be grappled with is not so much the regulation of the traffic, however necessary this may be, but its limitation. The London County Council has done much to improve and to expand the thoroughfares of the metropolis, yet the widening of streets, often carried out at infinite cost, is but the treatment of a symptom, nay, it oftentimes aggravates the disorder which it attempts to control. The increased accommodation provided in the lofty structures which supersede the smaller original buildings, whether used as places of amusement, business, or residential flats, tends eventually to increase the traffic by attracting a larger population to the district and affords at the best only temporary relief. The London County Council in its paternal care for the welfare of its charges has entered factories and concerned itself in the sanitary well-being of the workers and in the proper provision for the means of escape in case of fire. It has in the present question a mammoth undertaking calculated to satisfy the ambition of its most progressive member and one which if properly dealt with would not only improve the health of the community at large but might eventually add to our capability to bear an increased taxation by supplying new health and vigour to the working population. In place of encouraging overcrowding in the already congested centres the removal of some of the hives of industry into healthier and more open surroundings, where those engaged could live within easy access of their work and under more hygienic conditions, would be invaluable to all; the hospitals, workhouses, and infirmaries would be relieved of many of their present inmates and a vast amount of unnecessary suffering would be averted. In some thickly populated districts there are certain very unhealthy trades injurious alike to those concerned and to those living in the neighbourhood, the evils associated with which, if not entirely obviated, would be greatly mitigated by

their removal to other surroundings. It is an old story, for as early as the latter part of the seventeenth century the authorities viewed with alarm the increase in the number of houses in London and edicts were made prohibiting the erection of fresh houses and in many cases houses which were afterwards built were pulled down. Public opinion, however, finally proved too strong in the matter and these edicts were disregarded.

THE QUATERCENTENARY OF GEORGE BUCHANAN.

WE observe in the agenda paper of a recent meeting of the General Council of the University of Glasgow that Dr. J. Peddie Steele of Florence has offered a prize of 100 guineas for the best essay on "Sixteenth Century Humanism as illustrated by the Life and Work of George Buchanan," the competition to be open to alumni of the four Scottish universities. Arrangements are at present being made for holding in St. Andrews, about the beginning of April, 1906, a celebration of the four-hundredth anniversary of the birth of George Buchanan, and the University of St. Andrews, when formally intimating this intention to the University of Glasgow, took the opportunity of mentioning Dr. Steele's offer. Dr. Steele is the author of many contributions which have appeared in THE LANCET and our issue of June 19th, 1897, p. 1686, contained a long Latin ode in the Alcaic stanza which he wrote on the Diamond Jubilee of Queen Victoria. On July 10th, 1897, we published an English prose translation of the ode.

THE MEDICAL OFFICERSHIP OF FORFARSHIRE.

IT appears from a Dundee newspaper that the county of Forfar proposes to elect a county medical officer and that the princely salary offered is £300 per annum inclusive of outlays, the remuneration to cover district as well as county work. The holder is to be debarred from general private practice but to be allowed consulting practice and to hold such other public health or appointments at hospitals for infectious diseases as may be approved of. There is the further stipulation that no compensation shall be payable on removal from office. In the absence of local knowledge the facts are puzzling. Even if there were a separate allowance for expenses the salary is obviously much too small unless it be foreseen that the man appointed will at least double his income by consulting work or by other appointments. But if he is to have a large consulting practice, can he fulfil all his duties as medical officer of health? From the census report we find that the population under the Forfarshire council is more than that of some counties which employ medical officers entirely debarred from practice. If, however, the county is not large enough to demand the whole time of a health officer, surely there is a better way than permitting medical practice to be combined with health work. According to the map, the adjoining county of Kincardine is not half the size of Forfarshire and the census shows that it has not half the population, yet it has a whole-time officer. Combination of the smaller counties in joint appointments is one of the features of the public health *régime* in Scotland. Why should not Kincardine and Forfar unite for this purpose, as Elgin, Banff, and Nairn on the north have done, and Fife, Kinross, and Clackmannan on the south? It appears from the newspaper report that members have already been well canvassed on behalf of aspirants to office. There are, unfortunately, few medical vacancies for which no applicants can be found, but the county council will be pursuing a short-sighted policy if it subordinates efficiency of administration to any other consideration either of parsimony or of local influence. We have much faith in the Scottish Local Government Board's financial control of such matters and a declaration made some time ago by Lord Balfour of Burleigh when Secretary for Scotland regarding a vacancy for the county of Caithness leads us to hope that his successor, the Marquis of Linlithgow, as President of the Local Government Board, will see that the same strong policy is carried out in the present instance and that the Board will accept no proposals which do not insure the due administration of the laws relating to public health. The county health system of Scotland is one of the triumphs of local government and occasion should be taken to make Forfarshire toe the line now that a vacancy has occurred to furnish the opportunity.

THE PATENT MEDICINE EVIL IN AMERICA.

A CRUSADE is now being carried on in the United States by some medical and lay journals against certain patent and proprietary medicines. The prime mover in this campaign was the *Ladies' Home Journal* but *Collier's Weekly* has been the most energetic of the lay journals that have taken part in the fray. Of the medical journals the *Journal of the American Medical Association* has been most active in fighting what it terms the "Great American Fraud." The *Referee* in its issue of Nov. 12th comments on the enormous sale of proprietary medicines in Great Britain but the consumption of such remedies in this country is small compared with that of the United States. The drug-taking habit in America can only be described as prodigious. The present fight against proprietary and patent medicines is especially directed against those which contain alcohol, some of these so-called medicines, according to analyses made some time ago, being no more nor no less than highly intoxicating beverages. The charge is also brought that many of the lay newspapers in the United States act in collusion with the proprietors of patent and proprietary medicines and for the sake of a substantial pecuniary consideration fight on the side of the proprietors by all the means in their power.

LOCAL ANÆSTHESIA PRODUCED BY INJECTION OF WATER.

A METHOD of producing local anæsthesia by injection of water was last year advocated by an American surgeon, Dr. Samuel Gant, principally for operations on the rectum and anus.[1] He claimed that the method was most satisfactory for all sorts of operations on these parts (which are notoriously sensitive) as well as in colostomy and exploratory laparotomy and that it presents the great advantage over anæsthesia, whether general or local, produced by drugs of eliminating all danger of toxic effects. In the *Medical News* of August 26th Dr. A. B. Cooke has supported Dr. Gant's claims. Like many other surgeons, he remarks, he at first regarded them with incredulity, but a few observations of Dr. Gant's work brought conviction and he gave the method a trial in rectal surgery. When he encounters conditions of unusual severity he uses general anæsthesia but with increasing experience he resorts to it less frequently. His experience of the method comprises 15 cases of internal hæmorrhoids, two cases of prolapsus ani, two cases of anal fissure, and six cases of external hæmorrhoids. In the cases of internal hæmorrhoids only two patients complained of pain sufficiently to attract attention; one was a hysterical woman and the other a neurotic man who probably exaggerated their sufferings. Ligature was performed in all the cases. The average time of confinement to bed was less than two days and the average period of detention from business was five days. Pain after the operation was practically absent except for the first few hours. Only after close

[1] THE LANCET, Feb. 13th, 1904, p. 452.

observation in a number of cases of internal hæmorrhoids did Dr. Cooke try the method in more sensitive areas—in operations for fissure and external hæmorrhoids. The results he considered to be equally satisfactory. Some little momentary pain marked the insertion of the needle and the distension of the tissues but the further steps of the operation were painless. In five of the six cases of external hæmorrhoids there was thrombosis which was treated by incision, evacuation of the clot, and packing. In the sixth case a hypertrophied tag of skin was removed. Dr. Cooke concludes that the method is simple, safe, and effective. Pain at the time of operation was exceptional. Post-operative pain was inconsiderable—far less than under the old methods. Confinement to bed and detention from business were reduced by more than 50 per cent. The operations were practically bloodless and secondary hæmorrhage can scarcely occur except as a result of faulty technique. The operations were robbed of terror; patients readily consented to a radical operation when they could escape from the administration of chloroform or ether; even in the exceptional cases where they felt some pain they expressed gratitude at having been spared the dreaded ordeal. The benefits of surgery were extended to cases which otherwise would have been unsuitable for operation. The crowning advantage of the method of which Dr. Cooke's experience is summarised above is, he thinks, that while dispensing with all the discomforts and dangers of general anæsthesia it involves no sacrifice of thoroughness in operating. No accidents or complications, he adds, were encountered. The method, which appears to us to have been somewhat too enthusiastically praised considering the number of cases in which it has been tried, is by no means new. Schleich used saline injections, and Würdemann, who tried the method, found its use applicable in certain cases, but most observers appear to have considered it less valuable than the employment of drugs, such as eucaine β or cocaine. The production of an artificial œdema such as occurs when water or, better, normal saline solution is injected into the loose cellular tissue will induce mechanically analgesia, but it is not devoid of danger from sepsis and of inconvenience when the surgeon has to cut through the tissues rendered boggy by the injection. It is common for the advocates of the use of local analgesia to represent patients as being thankful to be saved the "horrors" of general anæsthesia but, on the other hand, many persons do not experience the "horror" when the anæsthetic is properly given and dread far more the exposure and manipulation and pain incidental to local injections. The strain upon the nerves of patients who submit to local analgesia is admitted by many and has in recorded cases proved distinctly detrimental.

EUROPEAN NURSES IN INDIA.

IN order to obviate the difficulty that has hitherto arisen in India in obtaining the services of skilled nurses Lady Curzon has initiated a scheme for supplying in that country and in Burma a staff of trained European nurses who would be available for taking charge of cases of sickness at the private residences of the sufferers or at a hospital, as might be most convenient to the patient. For the purpose of starting such a scheme and insuring the necessary funds a circular letter has been addressed by the Government to official and non-official residents asking for their coöperation and for subscriptions towards the money needed. It is proposed that the benefits of the scheme should be open to all who subscribe at least 1 rupee a month, whilst during the time the services of one of the nurses were required the charge would be Rs.5 for subscribers and Rs.6 for non-subscribers per day per nurse. The great advantages of trained nursing for the European portion of the community in India can hardly be over-estimated. At the present time they are dependent on the services of Eurasian women who have received a year's training in one of the Government training schools, a length of time quite insufficient to insure a complete and thorough training. The success of the army nursing sisters in India shows that such work can be done by European women and the possibility of obtaining the assistance of a trained English nurse would undoubtedly be a great boon to the many European women who must from time to time be in sore need of such skilled attendance. The question must, of course, be considered whether it is right and just for the Government to import and to subsidise such a body of women to compete with the Eurasian women whom it has trained in its own schools. No doubt such competition would bear hardly on these women, as there can be no doubt that the sick European would prefer the services of his own countrywoman. We have received a letter from Rangoon calling our attention to this side of the question and maintaining that the duty of the Government is rather to provide longer and better training for the Eurasian nurses already available and thus to improve their efficiency and status. He is of opinion that the work is unsuitable for European nurses who would be unable to stand its hardships and who would quickly have to abandon it. No doubt there is something to be said for this side of the question but such considerations can hardly be allowed to prevail in a matter of so great importance to all the members of the English community in these countries. We think that it will be found that there is room for both classes of nurses and that the new scheme, if it can be successfully carried out, will prove of the greatest benefit both to the public and to the medical men practising in India and in Burma.

FEVER IN TERTIARY SYPHILIS.

IT is well recognised that fever may occur in the secondary stage of syphilis but that it may occur in the tertiary stage and cause difficulty in diagnosis is not so well known. In the *Montreal Medical Journal* for October Dr. A. Birt has reported the following case. A man, aged 40 years, who had chronic urethritis and stricture for which he had undergone operation, complained of loss of weight and strength. A painless enlargement of the liver had been detected by a genito-urinary specialist. There was no history of alcoholism, syphilis, or malaria. The complexion was sallow and the temperature and urine were normal. The liver was moderately, and the spleen a little, enlarged. A tentative diagnosis of congestion or early cirrhosis of the liver was made. Under treatment the patient improved. Eight months later, when he was again seen, he had much changed for the worse. For two or three months his health had failed and he had lost weight and strength and had suffered from cough, night sweats, and pains in the lower part of the chest and right shoulder. The chest and sputum were repeatedly examined for tuberculosis with negative result. The patient was pale and sallow but not jaundiced. The fæces were scanty, dry, and pale. There were a constant evening rise of temperature to 100° or 101° F., a morning remission to subnormal, and profuse night sweats with occasional slight chills. The liver was moderately enlarged and had a well-defined margin. It was very tender and on deep respiration dragging pain was felt over it and radiated to the right shoulder and upper chest. The spleen was somewhat enlarged, palpable, and tender. Two months later light was thrown on the diagnosis by the detection of a small tender node at the costo-chondral junction. Only then did the patient admit that he had contracted syphilis 11 years previously. Under moderate doses of mercury and iodide of potassium astonishing improvement took place. After 45 grains of the iodide had been taken the fever disappeared. The appetite promptly returned and

the pains ceased. In six weeks he gained 22 pounds in weight and in seven weeks the liver, which had measured six and three-quarter inches in the right nipple line, had receded to the costal margin and was no longer tender. Complete recovery ensued. When fever occurs in tertiary syphilis night sweats, loss of weight, and pain in the chest often occur, and the disease is liable to be mistaken for tuberculosis or malarial fever. In the Transactions of the Association of American Physicians for 1898 Dr. Janeway has reported six cases of syphilitic fever in which the patients were treated for tuberculosis. Syphilitic fever has also been mistaken for typhoid fever and for septicæmia.

THE SPAS AND HEALTH RESORTS OF THE BRITISH ISLES.

THE charge is frequently brought against the inhabitants of Great Britain that they do not fully appreciate the spas and health resorts of their own country. When ordered away by a medical man for a change of air or to undergo special treatment by means of mineral waters, in a large number of instances the patient betakes himself to a well-known continental spa. This neglect of home health resorts is due to several causes, some of which, perhaps, are based on sound reasoning, while others, to put the case mildly, are open to argument. One of the most weighty objections adduced against many British spas is their deadly dulness and although this reproach has been removed from a few of the most celebrated, yet even these can hardly be said to vie successfully in attractions with the best continental resorts. Especially is this the case so far as good music is concerned. The fashionable continental spas present a variety of amusements and of company with which none of the health resorts of this country can compete on equal terms. Again, the management of the continental spas from a medical point of view is upon the whole better, or at any rate is conducted upon a more elaborately impressive system. The German health resorts in particular are managed with the sole aim of attracting patients and every detail calculated to attain this object is carefully considered and worked out. Fashion, too, plays a somewhat prominent part in drawing those in search of health to foreign shores. Ignorance of the facilities for treatment which exist at health resorts in the British Isles is another notable factor in the exodus of patients to the Continent. If it were widely known that this country possessed spas and health resorts in no wise inferior in therapeutical possibilities to the best of Europe, there can be but little doubt that many invalids would not brave the discomforts incidental to a continental journey and the inconveniences to which visitors are frequently subjected upon arrival. It is proposed to add to the third International Food Exhibition, which is to be held next spring at the Crystal Palace, a section devoted to health and hygiene, in which special prominence will be given to the spas and health resorts of the United Kingdom and the Continent. Effective means of advertising will be used to make known the therapeutical properties of the various mineral springs and health resorts of this country. To each spa or health resort represented a stall will be allotted in the centre of the nave of the Crystal Palace, at which the natural attractions of the different health resorts will be exhibited in as comprehensive a manner as possible. It is also proposed that there shall be an information bureau at each stall and we have even heard a rumour that qualified medical men will be in attendance to advise as to the most suitable resorts for the treatment of various affections. We cannot think that this idea will ever take shape and for our part we hope that it will disappear at once and totally from the programme of the organisers. Trustworthy information can be widely diffused in regard to the spas and health resorts of the United Kingdom without recourse to such questionable procedure from a professional point of view. But no legitimate means should be spared to let the public know that the number of spas in this country is large. Of these Bath is especially distinguished in that its reputation was first established by the existence of thermal springs. In the time of the Romans Bath was a place of considerable importance. The waters at Bath are considered of therapeutical value in the treatment of gout, chronic rheumatism, and of diseases of the skin, especially of those of gouty origin. The equipment at Bath is probably as complete as at any spa in the world. Harrogate is a spa which has deservedly won a high reputation. The waters at Harrogate, which are non-thermal, may be divided broadly into sulphur and iron waters. The sulphur waters are esteemed useful in most hepatic troubles not due to organic disease. Externally the mild sulphur water is used in skin diseases. The chalybeate waters are recommended in the treatment of anæmia, chlorosis, and chronic rheumatoid arthritis, and Buxton waters, which are tepid and poor in mineral ingredients, are used in gout and gouty affections. The waters at Leamington contain large amounts of magnesium sulphate and are employed chiefly for patients suffering from congestion and enlargement of the liver. The brine baths of Droitwich and Nantwich are considered valuable in so-called muscular rheumatism and to a lesser extent in sciatica. Moderate amounts of salt are contained in the waters of Woodhall, where they are combined with bromine and iodine in small quantities. In Scotland the best-known spas are Strathpeffer and Moffat, in Wales Llangammarch, Llandrindod, and Builth, and in Ireland Lisdoonvarna. Spas serve a very useful purpose in the treatment of certain affections. Their waters, whether used externally or internally, are not, as is often injudiciously claimed for them, a panacea for all the physical ills to which flesh is heir, but their therapeutical properties, in conjunction with the routine imposed upon patients, frequently exert a most favourable influence upon the course of complaints amenable to such treatment. The object of the proposed section of the exhibition to take place at the Crystal Palace next spring, to demonstrate as clearly as is possible that the health resorts and spas of the British Isles are inferior in few respects and superior in many respects to those of the continent, is one to be commended.

STIMULATION OF THE EYE IN SYNCOPE.

Dr. Jean Chevrotier in a thesis presented to the University of Lyons gives the following propositions as the results of his experiments. 1. The application of properly selected conjunctival irritants is capable of causing the return of respiratory movements in animals that are apparently dead. 2. The excitation of the conjunctiva has been observed to restore the respiratory movements in three persons in a state of syncope and the success observed in these cases as well as the results of his experiments ought to encourage the employment of the same means in other instances. 3. Whilst conjunctival stimulation induces a return of respiratory movements it does not appear to have any restorative action on arrest of the cardiac contractions when arrested—at least, if it have any it is only of a secondary nature. 4. The mechanism of conjunctival stimulation is analogous to that of rhythmical traction of the tongue in which the superior laryngeal or glosso-pharyngeal nerves are the centripetal paths of the excitation inducing the lost respiratory reflex. 5. The conjunctival stimulus is transmitted through the fifth pair of nerves. 6. The reflex centre is situated in the plane of the corpora quadrigemina or, to speak more exactly, of the posterior pair of those tubercles. 7. The centrifugal motor path is constituted by the phrenic nerves. 8. The existence of the

seventh pair of nerves seems to be indispensable according to his researches in birds, reptiles, and batrachians. 9. The transmission of the reflex may take place either on the same side or on the opposite, the place of decussation in the latter case being the corpora quadrigemina.

THE HEREDITY OF ALBINISM.

AN investigation as to the heredity of albinism in man is being carried out by Professor Karl Pearson, F.R.S., of University College, London, with the coöperation of Mr. E. Nettleship (Shottermill, Surrey), and Dr. E. Stainer (physician to the skin department, St. Thomas's Hospital), 60, Wimpole-street, London, W. We are asked to state that cases bearing on the subject, either positively or negatively, will be very thankfully received by any of those gentlemen. The investigators desire to collect a large series of examples of albinism—complete or incomplete, general or partial—in which the family history of the albino patient can be traced for one, two, three, or more generations. The sex and prevalent colour of eyes and hair in as many of the patients' relatives and ancestors as possible should also be noted whether any of them were albinotic or not; also all instances of consanguineous marriages. Cases of albinism of the eyes in persons with congenitally pied skin, most easily recognised amongst dark races, will also be very valuable even without family history, acquired leukoderma being, of course, excluded. We trust that our readers may be able to assist in what promises to be a very interesting piece of research.

OPERATIVE TREATMENT OF THE INTRACRANIAL HÆMORRHAGES OF THE NEWLY BORN.

THE cerebral hæmorrhagus which may occur during parturition are fraught with serious consequences. They may prove fatal or lead to permanent brain disease, manifesting itself by paralysis, mental deficiency, or epilepsy. In the *American Journal of the Medical Sciences* for October Professor Harvey Cushing of the Johns Hopkins University has described a new departure in cerebral surgery—the operative treatment of these hæmorrhages—which procedure is analogous to that followed in the traumatic hæmorrhages in the adult. His object is to prevent the serious permanent consequences of the hæmorrhages. He has operated in four cases. In the first case, a primipara, aged 35 years, was delivered of twins after a prolonged labour which was terminated by a low forceps operation in which force was not used. The first child was deeply asphyxiated and did not breathe for some time. It could not suck and had several convulsive seizures. On the third day, when it was seen by Professor Cushing, it had a peculiar dusky appearance and the fontanelle was tense and did not pulsate. The left eye was kept closed and the pupil was dilated but reacted to light. The pulse-rate was 92, while that of the twin who was normal was 110. The respiration was irregular and shallow and was somewhat of the Cheyne-Stokes type with periods of apnœa. Under chloroform a horseshoe-shaped incision was made within, and concentric with, the border of the left parietal bone. An osteoplastic flap, including almost the entire parietal bone, was raised. The dura mater was tense and plum-coloured. On being opened a clot about one centimetre in thickness was found and apparently covered the whole hemisphere. The clot was lifted off the exposed area in large pieces with a blunt instrument and much clot which extended over the frontal and occipital regions was washed out with warm saline solution. The wound was closed without drainage. Despite the child's enfeebled condition from want of nourishment during three days of life it stood the operation well. Two hours afterwards it sucked from a bottle for the first time. Though there seemed every prospect of recovery it died suddenly eight hours after operation. A necropsy was not allowed. In the second case a primipara gave birth to a child. The presentation was breech and the labour was tedious and terminated by manual delivery. At birth a condition of "pallid asphyxia" was present but after the application of hot and cold water the child cried vigorously. There was no overlapping of the cranial bones or other signs of injury. The bottle was taken fairly well. On the fifth day the temperature was 101·6° and the pulse was slow (from 80 to 100) without obvious cause. On the sixth day there were five attacks of convulsions of varying type and increasing severity. In the more severe ones twitching was most marked in the right arm and leg. Some of the convulsions were confined to the face and head. On the seventh day there were 11 seizures, most of which were bilateral, but some of which seemed to be most marked on the left side. There was constant inequality of the pupils, the left being dilated and the right contracted, except during the attack, when both were widely dilated. The fontanelle bulged slightly but not so much as in the preceding case. On the morning of the eighth day there were seven seizures which were more severe than before and sometimes accompanied by cyanosis. The right parietal bone was turned down with the overlying parts in the manner described in the first case. The dura mater was somewhat tense and though not plum-coloured showed an underlying extravasation. On being opened free blood and small clots were found and were washed away with warm saline solution. The wound was closed without drainage. The child slept for two hours and when it awoke cried vigorously and took milk eagerly. The convulsions ceased and recovery ensued. A year later the child was reported to be a fine baby and beginning to speak. The third case appeared to be hopeless and the hæmorrhage was so extensive as to necessitate double craniectomy, yet recovery followed operation. In the fourth case the condition of the child was also unfavourable and a large clot was removed. Death occurred during operation. Professor Cushing concludes that, contrary to the text-books, a newly born child will stand a cranial operation well if there is proper regard for hæmostasis and avoidance of exposure to cold. It is noteworthy that in three of the cases the hæmorrhage was unilateral and that in two cerebral symptoms were not observed until several days after birth. Professor Cushing believes that in many cases the immediate risk of death and the grave late consequences of natal hæmorrhages may be avoided by operation.

THE HEALTH DEPARTMENT OF ST. LOUIS AND VARIOLA.

IN the *St. Louis Medical Review* of Sept. 2nd Dr. H. J. Scherck, chief dispensary physician to the health department, gives some observations and statistics in regard to cases of variola which have come under the notice of that department for the years 1903–04. During the years beginning April 1st, 1903, and ending March 31st, 1905, 1082 cases of small-pox were diagnosed and sent to quarantine by the dispensary division of the St. Louis health department. Medical men especially skilled in diagnosis are sent to the residence of a patient who is reported by the medical practitioner in attendance to be suffering from small-pox. A card is made out giving a complete history of the case. A list is then made out, giving the name and address of the employer of each and every person who has in any way come into contact with the case. If the patient be too weak to be moved a placard is affixed to both front and rear of the house stating that small-pox exists therein and a strict quarantine is maintained until the patient's condition warrants removal to quarantine or until

the house is fumigated. If there be any doubt as to diagnosis or should the case be one of recovery the patient is removed at once to the isolation ward and retained there until the house has been thoroughly fumigated. In order to compel those who have been exposed to infection to be vaccinated a system has been adopted by which their employers are notified of the great danger to be apprehended from allowing them to work without first being vaccinated and requesting that they insist upon such vaccination and insist also that their employés report from the tenth to the fifteenth day after exposure to infection, in order to have their temperatures taken. A card index system is kept of the names, addresses, and so on, of all who have been exposed to infection and should any of these show a rise of temperature during the danger period they are instructed to remain indoors and a most careful watch is kept for the appearance of any eruption. There can be no doubt that the precautions taken by the St. Louis health department against the spread of small-pox are elaborate and thorough. The large number of cases that occurred in St. Louis during the years 1903 and 1904 must strike all readers. That the disease, however, was of a very mild type is shown by the fact that the death-rate was less than one-half per cent.

THE GLASGOW ROYAL INFIRMARY AND ITS MEDICAL SCHOOL.

THE question of the relationship between general hospitals and the medical schools attached to them is receiving much earnest attention in certain quarters in London and a very detailed statement of the position as it affects one of the largest hospitals in Great Britain—namely, the Royal Infirmary of Glasgow—has been published in a pamphlet of 46 pages. The want of students at the Glasgow Infirmary has become a serious problem, a fact which must strike those who in days gone by persisted in regarding these same students as a nuisance and an excrescence upon hospital routine as a little droll. The pamphlet is the work of Dr. D. C. McVail, the Crown Member for Scotland on the General Medical Council, and he goes into the whole interesting question thoroughly. In another part of our present issue one of our Scotch correspondents gives an abstract of the present position of affairs which contains material for reflection for all interested in medical education. It will be remembered that in his wards in this hospital Lord Lister first elaborated the antiseptic methods in surgery.

THE PHYSICAL SUBSTRATA OF PSYCHICAL PROCESSES.

MUCH difference of opinion still exists as to which, if any, special part of the cerebral cortex is concerned in the higher psychical processes, and to the solution of this problem Dr. J. S. Bolton makes a contribution in the course of an article on Amentia and Dementia in the numbers of the *Journal of Mental Science* for April, July, and October, 1905. His research is based upon a study of the structure and mode of development of the cell layers of the cortex and upon extensive micrometric examinations of these layers. The main conclusions arrived at are as follows. The anterior association centre of Flechsig, in the prefrontal lobe, is concerned in the performance of the higher coördinating and associational processes of mind. This region is under-developed in all grades of primary mental deficiency and undergoes atrophy *pari passu* with the development of dementia. Of the five primary layers of which, in the opinion of Dr. Bolton, the cerebral cortex is composed it is pointed out that the first and fourth are essentially nerve fibril layers; the second, third, and fifth contain respectively the pyramidal, granule, and polymorphic cells and are mainly nerve cell layers. Dr. Bolton's researches go to show that in the prefrontal region the pyramidal layer is the last cell layer to develop during the process of lamination and the first to undergo retrogression in dementia, that it is the only layer which appreciably varies in depth in normal brains, that the degree of its development in normal fœtuses and infants varies directly with the mental power of the individual, and that the degree of its retrogression in demented patients varies directly with the amount of dementia present. The pyramidal layer for these, amongst other, reasons may be regarded as subserving the associational or "psychic" functions. The third or granule layer is regarded on developmental grounds as subserving the reception or immediate transformation of afferent impressions. The fifth or polymorphic layer, being the first to be differentiated during the process of lamination and the last to fail in the retrogression of dementia, probably subserves the lower voluntary functions of the animal economy.

WHAT IS WHISKY?

THE adjourned proceedings on Monday last in the case which is being heard at the North London police court did not appear to bring the end of the inquiry much nearer to view. It is very doubtful indeed whether the hearing of the evidence will be concluded this year. Meantime cross-examination is eliciting some interesting statements. Dr. F. L. Teed, the borough analyst (recalled), in reply to a question put by the magistrate, said that, in his opinion, a spirit ceases to be whisky when it it ceases to show 380 parts of secondary products per 100,000 parts of alcohol present and added also that the highest coefficient found in spirit from the patent still was 203·8. Whisky, he thought, must be unrectified spirit. Mr. Persse, a well-known Irish distiller, said that in his business the pot-still had always been used and he did not consider patent-still spirit to be whisky at all. Asked whether he was aware that malt is used in every patent still in this country he replied in the negative. Mr. Power, another Irish distiller, representing Sir John Power and Sons, described the materials which are used in the manufacture of Irish whisky. He said that it was absolutely impossible to make Irish whisky from maize in a pot-still. His definition of Irish whisky was whisky made in a pot-still from home-grown cereals. The patent still could not produce the same results as the pot-still. Asked by the magistrate as to what he understood by blending, he replied: "The mixing of silent spirit with pot-still whisky. Two whiskies would be mixed, not blended." Whatever the magisterial decision may be, the hearing of the case is clearly serving a good end in that it is bringing to light, apart from analytical technicalities, a good deal of practical information of which the public hitherto knew nothing. The further hearing was adjourned for a fortnight.

ANTITUBERCULOSIS LEAGUE IN THE ARGENTINE.

IN the hope of decreasing the annual mortality from pulmonary tuberculosis in the Argentine a small "Antituberculosis League" was founded some four or five years ago under the patronage of the Minister of the Interior. The sum of 70,000 francs was given to it from the proceeds of the National Lottery and subscriptions were obtained from various sources. Under its auspices public lectures have been given to large audiences in various towns and information has been disseminated in different ways—amongst others, by means of two large illustrated posters, reduced copies of which are published in *La Semana Médica* of Oct. 12th. A dispensary for tuberculous cases has also been established. The authorities have ordered notification of pulmonary tuberculosis to be compulsory on the landlords and occupiers

of houses. Before the league was formed cases of the disease were freely admitted into all the general hospitals in Buenos Ayres; since then, however, attempts have been made to confine admission of these patients to the Francisco J. Muñiz Hospital, which is for infectious diseases, and to set apart special wards in other hospitals for them. This has been done in the French hospital and in the Rivadavia female hospital, but the Italian, Spanish, English, and German hospitals refuse cases of pulmonary tuberculosis altogether. The military and naval cases are sent to the Muñiz Hospital. For cases which are reported as curable a new institution called the "Doctor Tornu Sanatorium" is now available for male patients. It is situated in the neighbourhood of Buenos Ayres and when funds permit will be enlarged so as to accommodate women and children.

ANTIVIVISECTIONISTS IN COUNCIL.

ON Nov. 15th a public meeting was held at the Victoria Rooms, Bristol, to further the antivivisection movement. The Hon. Stephen Coleridge, who spoke with his usual enthusiasm, remarked that in his opinion brain surgery was not justified. He also expressed a hope that some day all animals used for food would have to be anæsthetised before being killed. A medical man who was present, Mr. Francis Richardson Cross, made an excellent speech in which he said that most medical men admitted that experiments upon living animals should be performed under anæsthetics. As a matter of fact they are so in this country with the exception of inoculation experiments. Mr. Cross mentioned the increase in our knowledge of brain function and surgery which had accrued to us from experiments on monkeys, and no one can doubt the truth of his assertion. Another medical man, Dr. Charles Reinhardt, is reported to have said that post-mortem investigations were quite sufficient for this purpose, an argument which needs no refutation other than itself. No arguments will convince the antivivisectionist, but all the same we are quite certain that if he had an aneurysm he would submit to the Hunterian operation which was devised after, and founded upon, the vivisection of a buck; and if he had a child who was a cretin he would certainly allow that child to be treated with thyroid gland substance, the virtues of which were also discovered by vivisection.

THE BROMPTON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST.

THIS hospital has been recognised by the Conjoint Board for England as a place where, under the present curriculum, six months of the fifth year may be spent in clinical work, and the facilities which it affords for the study of diseases of the chest have therefore been extended with a view to meet the requirements of advanced students. Two courses of lectures and demonstrations will be given during the year by the medical staff at 4 P.M. on Wednesdays—namely, a spring course from January to March and a winter course from October to December. The lectures will be open to students of the hospital and to qualified medical men on presentation of their cards. Several appointments of clinical assistants and clinical clerks will be made. In the out-patient department a clinical assistant will be appointed to each assistant physician and will be required to attend on two days in the week at 12 noon. In the wards clinical clerks will be appointed to each physician. Attendance will be required twice a week from 10 A.M. to 12.30 P.M. and in the afternoons during the visits of the physician. These appointments are tenable for three or six months. Applicants who are not qualified must have completed four years of medical study. The fee for attending the practice of the hospital is one guinea for each month, or two guineas for each period of three months, or five guineas for perpetual fee. Clinical assistants and clerks who have not entered for the practice of the hospital will be required to do so on appointment. Forms of application for clinical appointments may be obtained from the secretary of the hospital.

ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

THE next meeting of the Royal Medical and Chirurgical Society, on Tuesday, Nov. 28th, should prove to be of exceptional interest. A general discussion on the Principles of Therapeutic Inoculation as applied to the Treatment of Tuberculous Infection will be introduced by four papers covering the whole ground, bacteriologically and clinically. The first paper is by Dr. A. E. Wright and is entitled "The General Principles of Therapeutic Inoculation by Bacterial Vaccines as applied to the Treatment of Tuberculous Infection." Dr. David Lawson and Dr. Ian Struthers Stewart will follow with a Study of Some Points in Relation to the Administration of Tuberculin (TR) controlled by Observations of the Opsonic Index in Pulmonary Tuberculosis. Then Dr. W. Bulloch will read a paper entitled "The Treatment of Tuberculosis by Tuberculin," and lastly, Mr. John G. Pardoe will discuss the Treatment of Tuberculosis of the Urinary System by Tuberculin (TR). The papers will be illustrated by specimens and by epidiascope projection. It is anticipated that the discussion will extend over more than one meeting.

THE medical officer of health of the Cape Colony states that for the week ending Oct. 28th the condition of the colony as regards plague was as follows. No case of plague in man was discovered throughout the colony nor any in other animals except at Port Elizabeth where 12 plague-infected rodents were found. As regards the Mauritius, a telegram from the Governor received at the Colonial Office on Nov. 17th states that for the week ending Nov. 16th there were 16 cases of plague and 8 deaths from the disease.

A SCHEME has been set on foot for the establishment on a permanent basis of the National Waifs Association, as a national memorial to the late Mr. Barnardo, F.R.C.S. Edin. This association is carrying on the work of "Dr. Barnardo's Homes." The President of the scheme is Lord Brassey, and the treasurer, to whom subscriptions should be forwarded, is Mr. Howard Williams of 72, St. Paul's Churchyard, London, E.C.

THE Inter-departmental Committee on Medical Inspection and Feeding of Children attending Public Elementary Schools has issued a report which, with its appendices, makes a very lengthy volume. The results of medical inspection, which will be commented upon in another issue of THE LANCET, show a considerable awakening of the public mind to the teachings of hygiene and preventive medicine.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association will take place at the Hotel Cecil, London, on Nov. 28th, at 7 o'clock P.M., when Sir William Whitla will preside. The dinner will be followed by an entertainment and smoking concert. Tickets can be obtained from Mr. E. Canny Ryall, 145, Harley-street, London, W.

His Majesty the German Emperor has been pleased to confer the Insignia of the Third Class of the Royal Order of the Crown on Mr. Charles A. Ballance, F.R.C.S., and His Majesty the King has been graciously pleased to grant to Mr. Ballance permission to accept and to wear this decoration.

WE regret to announce that Mr. John Croft, consulting surgeon to St. Thomas's Hospital, died at his residence,

1, Fitzjames-avenue, West Kensington, on Tuesday last, Nov. 21st, in the seventy-second year of his age. An extended obituary will appear in our columns.

THE report of the Local Government Board for 1904–05, which has just been issued, contains a summary only of the work of the Medical Department, as a supplementary volume will be published on the subject.

ALL His Majesty's loyal subjects have been glad to learn that the accident which he sustained last Friday, Nov. 17th, while shooting in Windsor Great Park, proved only to be a slight one.

THE annual dinner of the Medical Graduates' College and Polyclinic will be held at the Trocadéro Restaurant, Piccadilly-circus, London, on Friday, Dec. 8th, at 7.15, Mr. A. W. Mayo Robson in the chair.

LUNACY PRACTICE IN GERMANY.

BY E. B. SHERLOCK, M.B. LOND.

IT may be inferred from the amount of literature dealing with the subject which emanates from Germany that the study of psychiatry is not neglected there and this consideration induced me while spending a short time recently on the Continent to endeavour to learn something of how the problems originating in the wide prevalence of mental disorders are faced by our friends across the North Sea. The following notes are a summary of information thus gleaned. It may be said at once that no startling discoveries are here set forth. I am fully awake to the incompleteness of these observations, but so far as they have gone they do not lead me to believe that England has much to learn from her neighbours as regards the care and treatment of the mentally defective. There is, indeed, except in matters of detail, a general parallelism between our own and German methods. Such differences as were found will be referred to in their appropriate places. I propose to review briefly a few aspects of the social and medical relations of the insane as these presented themselves in connexion with the various institutions visited.

Like ourselves, the Germans have to deal with a class comprising children below the normal standard of mental development who are yet not of such a low grade as to require constant supervision in an asylum. These cases are so aptly described by Herr P. Gerhardt,[1] the head of the teaching staff at the Alsterdorfer Asylum in Hamburg, that his words are worth quoting. He says of the children: "They are less well-built, weaker and more sickly than the normal child. Their eyes are dull, their gait heavy. They feel themselves out of their element in the playground and instead of joining in the games there in progress sit gazing blankly before them. In the schoolroom they show themselves lacking in volition, feeling, and capacity; they cannot remember the forms of the printed letters and their clumsy fingers cannot learn to manipulate pencil or pen." The process of attempting to educate such children has been compared by a German writer to that of galvanising the muscles of a dead frog, but Gerhardt's comparison of these cases to weak magnets, of which the effectiveness can be increased by appropriate methods, is a happier and a more accurate one.

England has done something within the last few years on behalf of these degenerate members of society. The Elementary Education (Blind and Deaf Children) Act of 1893 enabled school authorities to make suitable provision for certain of them and an extension of these powers so as to include within their purview children suffering from other disabilities was effected by the Elementary Education (Defective and Epileptic Children) Act, 1899. Under these Acts various schools have been established of which those now controlled by the London County Council may be taken as a type. For the mentally defective and epileptic children of London 76 schools, with an average attendance of 3738 scholars, had been provided up to June, 1905. In Germany the movement is much older. It was initiated by Dr. Kern of Möckern in 1865 and the support afforded to it by Ernest Stötzner and C. W. Steuer resulted in the founding of the first "Hilfsklasse" or special class for mentally defective children in Dresden in 1867. Gera (1874), Apolda (1877), Elberfeld (1879) followed, and by 1903 there were 150 cities and towns furnished with special schools or departments for the feeble-minded. Frankfurt-am-Main has one of the best-known schools. Here the condition regulating admission is that the child shall have for two years regularly attended an ordinary school (Volksschule) without having been able, on account of mental infirmity, to get out of the lowest class. Hamburg was somewhat late in the field. The first Hilfsschule was established in the St. Pauli quarter in 1892, a second followed in 1894, and a third in 1895. There are now eight such schools with teaching staffs amounting to 50 and an attendance of about 800 children. For persons of a lower intellectual level accommodation is provided in the Alsterdorfer Asylum. This institution was founded by Heinrich Matthias Sengelmann, who was for some years pastor of the church of St. Michael in Hamburg and up to the year 1899, when he died, its history is his. It originated in 1850 in what was known as the St. Nicholas foundation, a school for children neglected by their parents. This was transferred to Alsterdorf, a suburb of Hamburg, in 1860 and there in 1863 was added the department for the weak-minded, which has since become the dominant feature. A section for cripples was added in 1871 and a pavilion for better-class patients in 1879. In Germany, as in England, the provision of homes for imbeciles and idiots is a matter of private rather than of public enterprise and the Alsterdorf Asylum differs from the others to which I shall have to refer in depending for its means of existence mainly upon the benevolence of sympathisers with its aims. No doubt as a consequence of this fact the religious character of the institution has always been prominent. The present director, R. Stritter, is a clergyman and he has working with him two medical officers and a staff of teachers. A committee of 14 Hamburg residents, with whom are associated seven gentlemen representing Schleswig-Holstein, Mecklenburg, and other North German States is the controlling body. Situated to the north of Hamburg the asylum is easily reached by tram from the Rathaus Markt and its external aspect impresses the visitor favourably, although some of the buildings are, as I afterwards found, old and not particularly well adapted to their purpose.

In spite of the fact that I had no credentials other than my card to present I was received, as indeed at every institution I visited in Germany, with cordiality and, in the absence of most of the superior officers, was shown round the buildings by the "Oberin," whose position corresponds somewhat to that of our English "matron." From various sources I learned that at the end of 1904 the asylum contained 438 male and 323 female patients with a staff of 94 men and 72 women. Idiots and imbeciles of any class and age are admitted and those of each sex are divided into four groups: (1) young children; (2) those attending school; (3) those at work; and (4) the sick and infirm. The scholars number about 100 and their training is on familiar lines. The same may be said of the various industries pursued; indeed, the asylum as a whole bears considerable resemblance to the idiot asylums of this country. Much more work seems, however, to be done by the patients; thus some, I was informed, are busy from 5 A.M. to 9 P.M., although this period is considerably broken into by the time occupied in consuming five meals a day, not all, of course, of a very substantial character. Even the school hours are arranged on a similarly liberal scale considering the class of cases under tuition. They were given as 8 A.M. to 12 noon, 2 P.M. to 4 P.M., and 5.30 P.M. to 6 P.M. A classification of the inmates on a pathological basis showed that the 761 cases on the books in December, 1904, included 543 patients suffering from non-epileptic imbecility, 204 epileptics, seven cases of chorea, one case of general paralysis, three cases of other nervous disorders, and three not clearly defined. During 1904 23 deaths, including four among the staff, occurred but only three were attributed to tuberculosis, while five were due to epilepsy. That fuller scientific details are not forthcoming is no doubt accounted for by the numerical weakness of the medical staff, in which respect the Alsterdorfer Asylum, as will appear, differs very considerably from the other institutions visited. It is obvious that the asylum authorities are greatly handicapped by want of funds and

[1] Zur Geschichte und Literatur des Idiotenwesens in Deutschland, 1904, p. 69.

the strictest economy has evidently been exercised as regards building operations, for the 28 principal and 19 subsidiary structures which are comprised within the asylum limits are said to have cost little more than £50,000. The pavilion most recently erected is worthy of note. It is substantial, well fitted, and of good appearance and cost £7600. As it accommodates 130 patients, with their attendants and the usual offices, this is at the rate of only £62 10s. per bed. I noticed in this building an ingenious device for getting rid of the soiled linen from the upper floors. This necessary operation is effected by means of small glass-lined shoots through which the clothing is at once transmitted to the basement for collection and transference to the laundry.

The Alsterdorfer Asylum is not the only one in Hamburg, there is, for example, the Friedrichsberg public asylum and that at Langenhorn. I have taken the Alsterdorfer Anstalt as one of the largest and most prominent examples of the institutions devoted to congenital and harmless cases. Germany has about 100 of such institutions, nearly all of a private character. Those which are rate-supported are chiefly departments of the general asylums as at Dalldorf. Except in London, where the existence of the Metropolitan Asylums Board introduces special features, England provides for its mentally defective inhabitants on very similar lines.

Lunatics in the narrower sense—i.e., persons suffering from the more acute and dangerous forms of insanity—constitute a social danger, against which the German nation, like the English, protects itself by means of public asylums into which the admission of patients can only be obtained through the observance of the proper formalities. The various kingdoms, duchies, provinces, &c., which go to make up the German Empire have not as yet, however, so far lost their individuality as to accept uniformity in the matter of controlling the insane. There is not, that is to say, anything comparable with our Lunacy Act of 1890. The procedure therefore differs in different parts of the country but its general course is somewhat on these lines. The subject of mental aberration brings himself or is brought to the notice of the police who apprehend him and fill up a form relating to his "*Aussere Verhältnisse*," resembling our own "Statement of Particulars," but much more detailed. The form employed in the Province of Saxony, for example, contains 53 questions dealing chiefly with the financial position of the alleged lunatic and his relatives. A certificate in which are recorded the "*Aerztliches Gutachten*" or opinions of the district medical official (*Kreisarzt*) is also obtained. In this instead of the evidence of mental disease being supplied in a brief enumeration of "facts indicating insanity" the medical man has to answer about 60 specific questions gathered into 11 groups and is finally expected to comment on the prognosis and the desirability of asylum treatment. The first set of questions relates to the legitimacy of the patient, to the existence of hereditary tendencies towards disease, and to the physical and mental health of his relatives. Intra-uterine life, birth, early development, and education are then dealt with and an inquiry follows as to the occurrence of epileptic attacks and the relation of these to the psychical functions. The medical man is then invited to speculate upon the particular inter-action between the personality of the patient and his environment which has resulted in the production of the *status quo*, many of the influences which may be supposed to mould the character being alluded to in this connexion. Attention is then directed to the history of the attack and of any preceding attack, to the symptoms of mental or physical disorder which may be present, and to the treatment already employed. The *Kreisarzt*, it will be seen, is assumed to have that special knowledge of insanity which in England is expected only of the asylum medical officer. The thorough investigation made obviates the necessity for an appeal to a magistrate and no "reception order" is consequently required but the circumstances of the admission are reported to the *Staatsanwalt* or official solicitor. In cases of urgency patients may be admitted without the certificate of the *Kreisarzt* but that officer must be summoned within 24 hours to see the patient.

Dresden affords an example of a city which has put into practice the principle of establishing receiving houses for the insane which the Lunacy Acts Amendment (London) Bills of 1903 and 1905 were intended to introduce into the British capital. The Stadt-Irren und Siechenhaus in the Löbtauer Strasse consists of two sections—a general hospital opened in 1888 and a block containing observation wards for the insane which was opened in 1899 and now furnishes accommodation for about 50 patients of each sex. Cases of mental disease are not, however, excluded from the general hospital which has two divisions, one for bodily ailments and one for those of the mind. All the insane patients come under the care of Dr. Ganser, while Dr. Hecker controls the wards allotted to the other class. There are in addition seven assistant medical officers, together with a staff of 121 nurses and attendants. During the year 1903 1015 patients were admitted to the observation block, this number including 22 transferred from the hospital section. The names of 1012 patients were taken off the books, 553 being discharged to their homes and 297 transferred to the hospital, while 57 died. The rest were removed to other asylums of the Kingdom of Saxony—e.g., those at Colditz, Grosszschweidnitz, and (for the more dangerous class) Sonnenstein. It is interesting to note the large proportion (54·6 per cent.) discharged as fit to return to their friends. This must not be regarded as conclusive evidence of the desirability of introducing the receiving house system into England since, as a reference to figures given in connexion with the Dalldorf Asylum will show, the German conception of what constitutes "recovery" is less exacting than ours. A large amount of research is, I was informed by Dr. Schubert who kindly conducted me over the buildings, done in connexion with the insane at Dresden and I was shown the laboratories for pathological and bacteriological work, with a special room for urine analysis, in confirmation of this statement.

As a type of what I may perhaps be allowed to designate the "ordinary" asylum, that at Dalldorf, which is one of the largest and best known in Germany, may serve. The asylum is located in a suburb of Berlin and in connexion with this topic a few notes on the history of the care of the insane in the city as given by Dr. Löhr may not be out of place. As early as 1699 a Royal Commission was appointed to investigate the condition of the poor and insane with the result that in 1702 a special order relating to the latter class was issued. In 1709 Frederick I. directed the segregation of the insane in the Dorotheen Hospital whence they were transferred in 1728 to an asylum in the Krausenstrasse. This was destroyed by fire in 1798 after which date the Charité Hospital, which had been founded by Frederick William I. in 1726, appears to have taken the responsibility of dealing with lunatics until in 1862 an old building in the Wallstrasse was utilised as an asylum. In 1883 the male patients were removed from this building to the poor-house and it was not until 1880, when the present asylum at Dalldorf was opened, that satisfactory accommodation was provided for patients of both sexes. Berlin has now three large public asylums: (*a*) that at Dalldorf, which comprises a special department for non-epileptic imbeciles between seven and 16 years of age; (*b*) the Herzberge Asylum in Lichtenberg; and (*c*) the epileptic colony of Wahlgarten at Biesdorf. In these institutions room can be found for about 4000 persons but the number of lunatics under treatment at the expense of the city is much larger than this. Thus on April 1st, 1904, there were in the above-mentioned asylums, 3969; boarded out in private asylums, 2355; in family care, 567; giving a total of 6891.

Just as in London one hears complaints of overcrowding. A new asylum is, however, in course of erection at Buch and plans for another in the same district have been prepared. The deficiency of accommodation may be taken to account in some measure for the following figures relating to Dalldorf. During the year ending April 1st, 1904, there were admitted 1890 cases, about three times as many as would ordinarily be received into one of the much larger asylums of the London County Council in a year. The figures for the discharges and deaths are correspondingly high, being respectively 1109 and 476. Of the deaths 166 were due to cardiac disease while bronchitis and pneumonia accounted for 58 and tuberculous disease of the lungs for 46. These figures may be compared with those given by the English Commissioners in Lunacy for 1904. During that year of 9334 insane persons who died in England and Wales 955 were suffering from heart disease, 906 from bronchitis or pneumonia, and 1442 from pulmonary tuberculosis. It is not clear why there should be this difference in the relative incidence of the diseases named. 817 patients were discharged as "cured" or "improved" and nearly half (540) of the total number of discharges were of patients who had been in the asylum under three months. It is, therefore, not surprising to find

that four persons had each been admitted on more than 12 previous occasions or that two men were each admitted four times in the year under review. The evil of discharging cases not fully recovered must therefore be even greater in Berlin than in London.

On the date mentioned there were under the control of the asylum authorities 3642 lunatics, of whom 1556 were in the asylum itself, 1704 were boarded out, and 382 were in family care. The subjoined table indicates the forms of mental disorder recognised at Dalldorf and the number of examples of each :—

Simple chronic insanity	1682
Idiocy and imbecility	713
General paralysis of the insane	570
Senile dementia...	190
Epileptic insanity	96
Acute and chronic alcoholism	391
Total	3642

The medical superintendent at Dalldorf has associated with him three deputy superintendents and ten assistant medical officers, and though this arrangement is conceived on a more liberal basis than is customary in England it does not appear that the medical staff is in any way too large for the work it has to cope with.

Dalldorf Asylum is, as I have already mentioned, 25 years old and the reference to it may therefore be supplemented by a few notes on the asylum at Dösen, near Leipsic. This is, I believe, the newest completed institution of its kind. It was opened in 1901 and cost 4,000,000 marks (£200,000). It has accommodation for about 900 patients. The buildings constituting the asylum are regularly arranged on a rectangular site and all are completely detached from one another, the administrative block, laundry, kitchen, water tower, and pavilions being independent erections. The various blocks for the reception of patients are simply but neatly furnished and the effect of the whole is pleasing, though there are no striking architectural or decorative features. During a brief inspection of the place under the most courteous guidance of Dr. Dehio, one of the assistant medical officers, I observed sundry details of some novelty which may be worthy of recording. For the use of unruly patients aluminium vessels are provided, and the cleanliness, lightness, and absence of fragility of these seemed to render them peculiarly suitable for this class of case. A circular bread-knife quite incapable of the guillotine action which the ordinary pattern is apt to exercise on the fingers of the unwary also seemed to merit more extended adoption. In the laundry the drying horses familiar in English institutions were replaced by a chamber of special construction open at each end and having at each side an endless chain running over drums attached to the walls. Clothing to be dried passed through the chamber suspended from moveable wooden rods which rested at their ends on the chains and moved forward with them at a regulated speed. The process of drying was thus continuous, dry articles being removed at one end of the chamber as fresh ones were introduced at the other. From a copy of the superintendent's report for 1903 with which I was furnished I learned that during that year there were 387 admissions and 257 discharges. Of the former 62 men (25 per cent.) and 18 women suffered from general paralysis of the insane. 12 of the cases were described as "dementia arterio-sclerotica," a form of insanity which does not seem to have received much attention in England, though it is treated with some fulness in Dr. Stewart Paton's "Psychiatry," a recent American work. 26 patients were discharged as "recovered" during the year. Of the 110 deaths only 11 (10 per cent.) were due to tuberculosis. The asylum has an extensive installation of baths and the prolonged immersion treatment is largely employed, patients being kept in water at 26° to 28° R. (from 90° to 95° F.) for many hours, even for days, at a time.

Of all the German asylums that at Alt-Sherbitz is perhaps the one best known to English alienists, if only for the fact that it was described at length by Sir John Sibbald in his "Plans of Modern Asylums." It belongs to the province of Saxony and is situated close to the border of that province within easy reach of Leipsic whence it can be approached by tram and by train to Schkeuditz. Under the control of Dr. Paetz, who has been connected with it from its foundation and has been superintendent since 1879, the asylum has developed along special lines which make it even now in many respects unique. So frequently is it inspected by those interested in lunacy practice that special facilities are provided for the instruction of visitors in the shape of a large scale model and map with the aid of which one of the assistant medical officers, Dr. H. Engelken, jun., who speaks English fluently, enthusiastically demonstrated to me the main features of the establishment before conducting me over the various building. The asylum has replaced the village of Alt-Sherbitz and its 750 acres of land, running down to the river Elster, lie open to the public just as, presumably, they did in the old days. The high-road from Halle to Leipsic runs right through the grounds unguarded by fence or obstruction of any kind and the various pavilions are, except in the cases of a few special ones where new or recognisably dangerous cases are confined, left with doors and windows unsecured. The principle of non-restraint is indeed applied with the utmost thoroughness although the asylum receives patients of all classes except the criminal. There is accommodation for 1000 patients, if one includes the two pavilions (one for men and one for women) of 60 beds each which constitute the Kaiser Wilhelm-Augusta Stiftung. This is a hospital for the harmless incurable insane, built in 1883–85 with the help of funds collected in the province of Saxony to commemorate the golden wedding of the Emperor William I. A new pavilion was in course of erection and here I observed the employment of an ingenious device in connexion with the construction of the single rooms intended to obviate the difficulty caused by a patient inserting his hand between the door and the door-jamb and so preventing the shutting of the door. This is accomplished by making the door-jamb concave so that the edge of the door engages with it for its whole width. A patient's fingers are thus pushed back and not nipped. In connexion with the celebration in 1901 of the twenty-fifth anniversary of the founding of the asylum, Dr. Paetz published a *résumé* of the work done by the medical staff (which now numbers nine) containing some instructive comments. Thus it appears that the amount of freedom permitted to patients has not been productive of those untoward events which might have been expected. During the 25 years there were ten cases of suicide, a number which, although it might not be considered especially low in an English asylum, compares favourably with the figures for other German asylums. Dr. Paetz, while dissociating himself from the extremists who would entirely abolish the practice of seclusion, maintains that the rule for the use of single rooms should be that they remain empty during the daytime and be used at night as sleeping rooms only for such patients as are likely to disturb or be disturbed by other patients. At Alt-Sherbitz he has provided single rooms in the proportion of 1 to 40 patients, whereas the average proportion throughout Germany is 1 to 10. Rest in bed and prolonged baths have in the practice of Dr. Paetz displaced seclusion and the modern tendency both in England and Germany is in favour of this line of treatment.

In Berlin a certain number of the insane are boarded out in private families. Similarly, patients from Alt-Sherbitz and other asylums of the province of Saxony are placed in households of the little town of Jerichow. A mistake as to trains prevented my visiting the town as I had intended to do, so that I cannot from my own observation say how the system of family care works there. I was not, however, greatly impressed by it at Gheel in Belgium. To collect all the village idiots on one particular green no doubt improves the amenities of life in their original haunts and the method, as compared with asylum care, has the merit of cheapness. Probably in Germany, where the cases are carefully selected, the arrangement works well enough, but Gheel is suggestive of an evasion rather than of a solution of the problems of lunacy.

The differences which exist between English and German public asylums seem to depend chiefly on the fact that in England institutions for the insane are under popular control, while in Germany the direction of affairs is confined at all stages to medical men. With the large staff of medical officers attached to each asylum in the latter country it is possible to do much more in the way of the study and treatment of the cases than is practicable in England, though how far this accounts for the large proportion of "recoveries" reported I am unable to say. The predominance of medical influence is evidenced also in other ways; thus with us asylum attendants are primarily warders and they are supplied with uniforms to emphasise their official positions. The Germans, on the other hand, sacrifice

their notorious partiality for a distinctive costume and in order to introduce an element of homeliness allow the members of asylum staffs to wear their ordinary clothing. Another illustration is provided by the course adopted in regard to the erection of new asylums. I was informed that the first step taken in connexion with the intended provision of such a building near Strasburg has been the appointment by the Provincial Board of an architect and a medical superintendent, to whom jointly has been given what almost amounts to *carte blanche* in expending the 4,000,000 marks assigned for the purpose of construction.

About 20 years ago Dr. G. A. Tucker,[2] who visited many of the asylums in Germany, reported very unfavourably as to the manner of his reception at sundry institutions. I feel it the more incumbent upon me therefore to repeat that at all the places I inspected (and in only one case was it convenient to give notice of my visit) I was treated with the utmost civility. In addition to the gentlemen already mentioned I have to thank Dr. König of the Dalldorf Asylum and Dr. Eugen Cohn and Dr. Jastrowitz of Berlin for much valuable assistance.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE twenty-first annual meeting of Fellows and Members was held on Nov. 16th, Mr. JOHN TWEEDY, the President, being in the chair.

The PRESIDENT said that he did not propose to make a long speech but merely to lay before the Fellows and Members the annual report of the work which the Council had done in the past academical year. The interest taken in the College by the Fellows and Members was shown by the fact that this annual report of the Council was sent to 3069 Members and to 640 Fellows who had applied for it. He did not think it was necessary to go much into the matters mentioned in the report, as doubtless all present had read it.

Mr. JOSEPH SMITH at this point interrupted the President and asked whether the report was to be laid before the meeting, as there was a motion on the agenda in his name declining to receive the report of the Council.

The PRESIDENT replied that Mr. Smith would have his opportunity of speaking in a few minutes but that he (the President) must be allowed to finish his remarks.

Mr. SMITH, having made a formal protest against the presentation of the report, sat down.

The PRESIDENT, continuing, drew attention to a matter mentioned on p. 5 of the report. In the report of the Council issued last year it was stated that Licentiates of the Royal College of Physicians of Edinburgh were encouraged to use the title of Doctor; the Council had since received an official statement from that College that this was not so.

A MEMBER here interposed, saying that the Edinburgh College when writing to its Licentiates always addressed them as Doctor, and suggested that the bye-law quoted was of very recent introduction.

The PRESIDENT pointed out that it was necessary to accept the official reply of the Edinburgh College. He also drew attention to the suggested "school certificates," which were intended to replace the present system of a large number of entrance examinations to various professions and stated that the Council had expressed its general approval of the scheme. He also hoped that attention would be paid to the valuable report on the work of the Central Midwives Board, drawn up by Dr. J. Ward Cousins, the representative of the College on that Board. The College had during the past year received another trust fund, which was the twelfth under the care of the College. It was the Begley Trust and it provided a scholarship in surgery and anatomy of £20 a year. The Council had considered the question of the introduction of the electric light into the museum, but as the estimates obtained had exceeded £1000 it was decided to postpone for the present the installation, the inconveniences resulting from the present arrangement not being very great.

The SECRETARY then read the motion to be brought forward by Mr. SMITH who commenced by saying that he regretted having been compelled to interrupt the President but he thought that it was useless for the President to lay the report before the meeting if the meeting were to resolve not to receive it. The motion which he was now introducing was intended as a protest against the indignity with which two of the resolutions carried at the last annual meeting had been treated. The Council stated, as reported in the annual report, that the resolutions referred to did not call for any comment. As a mere matter of courtesy some reason should have been given for this action on the part of the Council. He protested against the very curt form of the Council's reply. He proceeded to quote from a speech delivered by Mr. Tweedy in 1888, in which the refusal on the part of the Council at that time to give any reason or explanation in reply to the demands of the Members was strongly blamed. He hoped that the President was still in the same mind now as then. These annual meetings were a perfect farce, as not the slightest attention was ever paid to the resolutions carried by the Members. He concluded by moving:—

That in protest against the repeated neglect by the Council of resolutions passed in previous years this meeting declines to have the report of the Council laid before it.

Mr. W. GIBSON BOTT seconded the motion. He agreed entirely with all that Mr. Smith had said. The Members were right in protesting against the loss of their patrimony which had been filched from them in 1843. In place of the democracy which existed previously an oligarchy had been formed. The result of this unjust treatment of the Members was that the London students were diminishing in numbers and this must mean a serious pecuniary loss to the College.

Surgeon-Major J. INCE proposed an amendment. He considered that the motion before the meeting was unwise and ungrateful. The Council had done much for the Members and even these meetings were a result of the goodwill of the Council. The subjects which the two resolutions mentioned concerned had been worn threadbare. Everything had been said about them which could possibly be said. He considered it anomalous and undesirable that the Members should have the power of voting for the Council and the granting of any such privilege would require an entirely new charter. He begged to move the previous question.

Mr. J. VINCENT BELL seconded the amendment. He reminded the meeting that several thousand Members and Fellows had applied for the annual report and that fact showed that the Members did receive the report of the Council and therefore it was absurd to suggest that the meeting would not receive it.

The PRESIDENT explained that he intended to follow Lord Peel, a former speaker of the House of Commons, in holding that "the previous question" meant that the question before the meeting should not be put. As to the Council's action regarding the resolutions carried at the last annual meeting he might point out that those resolutions did not ask any question or make any demand but that they were merely expressions of opinion and therefore the Council was surely justified in saying that no comment was needed. As to the quotations from a former speech of his, he would like to point out that in his present position it was his duty merely to represent the views of the majority of the Council; as to his own opinions he could say nothing. The present meetings were held as the result of a special request from the Fellows and Members and not under any by-law of the College and therefore they could be discontinued at any time if the Fellows and Members did not wish to continue them.

When put to the vote the previous question was lost by 16 votes to 10.

Mr. B. ROTH then moved, as an amendment, that the annual report be accepted.

Dr. J. H. VINRACE wished to make it quite clear that no personal attack on the President had been intended, for he was sure that all the Members felt the greatest admiration for the President. All that the Members wanted was to put the College on a firm footing; the Members wished to take a share in the government of the College.

Mr. F. W. COLLINGWOOD thought that the present state of affairs of the College was urgent and needed severe remedies. He could not conscientiously advise anyone to enter his son for the examinations of the Conjoint Board, but to send him to one of the provincial schools where the degree of Doctor of Medicine was obtainable.

Mr. SMITH claimed that the small attendances were due to the fact that Members were tired of coming to a meeting where the resolutions passed were completely ignored by the Council.

Dr. W. G. DICKINSON asked whether it was possible for the

[2] Lunacy in Many Lands.

meeting to accept or to reject the annual report of the Council.

The PRESIDENT, after consultation, said that it was not in the power of the meeting to carry any resolution expressing adoption of the report, as the report was merely a record of the Council's work for the past year. He had doubted whether Mr. Smith's motion was in order but the wish to stretch a point in favour of the Members had induced him to permit it to be put on the agenda. Now, however, he felt sure that the amendment which had just been moved was quite out of order; he would, therefore, put to the meeting the original motion of Mr. Smith.

The motion was lost by 19 votes to 15, several of the members of the Council voting in the majority. The result being announced many of the supporters of the motion left the theatre.

Dr. VINRACE suggested that a larger attendance would be obtained if the annual meeting were held at 4 o'clock, but the PRESIDENT stated that many years ago 4 o'clock was said not to be so convenient for those in general practice. Dr. Vinrace therefore withdrew his suggestion.

The PRESIDENT then called upon Dr. B. Walker to propose the motion standing in his name and concerning the physiology portion of the first Fellowship examination, but as Dr. Walker was not present the PRESIDENT declared the meeting closed.

On the motion of Surgeon-Major INCE a vote of thanks to the PRESIDENT was carried, which he briefly acknowledged.

34 Members were present and 22 Fellows, including 14 members of the Council.

THE ANNUAL REPORT OF THE MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

THIRD NOTICE.[1]

THE section of the report for which Dr. A. C. Houston is responsible deals with the validity of the tests usually employed in determining the bacteriological purity of drinking water and with various circumstances which may modify the interpretation to be put upon the results of those tests. It is a continuation of previous valuable investigations which we owe to Dr. Houston and to which bacteriologists and medical officers of health are much indebted. The pollution or purity of a water is gauged by the presence or absence of certain test organisms found in sewage—viz., bacillus coli communis, streptococcus, and the spores of bacillus enteritidis sporogenes, and the degree of pollution is estimated by the number of these organisms found in a given quantity of the water. It is therefore highly important to determine whether these organisms do furnish a true indication of sewage pollution or whether, owing to the possible existence of sources for these organisms other than human excreta, fallacies may occur. Further, if, as we know is the case, there are many sources from which organisms grouped under the names of bacilli coli and streptococci may be derived, is it not possible to distinguish those varieties of these races which are of human origin from those which have not that source? It is with these problems that Dr. Houston's report deals. In the report for 1902–03 it was shown that in a deep well water drawing its supplies from a virgin area (Tunbridge Wells supply) bacillus coli and coli-like organisms were practically absent and the classical bacillus coli communis invariably so. The inquiry as to the Bedford water-supply, which forms part of this annual report,[2] shows how exposure of the collecting ground and contamination may tend to pollution and the appearance of bacillus coli in the well water. Investigation of normal fæces showed the presence of an overwhelming abundance of bacillus coli of which 90 per cent. were typical—or as Dr. Houston calls them, "flaginac"—and the presence of streptococci to the extent of over 100,000 per gramme of fæces; these latter organisms were all practically non-pathogenic to mice.

The first division of this year's report deals with the excreta of healthy man and considers chiefly the atypical non-lactose fermenting varieties of bacillus coli and the differential characters of the streptococci found therein. Only 2·34 per cent. of the bacillus coli colonies examined were unable to ferment lactose. On this basis any but the typical ("flaginac") variety of bacillus coli might be excluded as evidence of sewage contamination if it was quite certain that these micro-organisms did not change their physiological characters by a sojourn in water. The proportion of bacillus coli-like organisms to the bacillus coli in water known to be sewage polluted is, however, much greater than this and seems to indicate a biological change in the fæcal type of bacillus. The fact remains that a pure water rarely contains glucose-fermenting bacteria of any sort in 100 cubic centimetres of water and the absence of glucose- and lactose-fermenting organisms is a special presumption of the absence of undesirable fouling of a water-supply. The next section deals with the number and biological characters of the streptococci in normal stools and attempts to classify them by the use of the tests devised by Dr. M. H. Gordon.[3] The test media used by Dr. Gordon are likely to prove of great value in differentiating the numerous races of streptococci found in various forms of disease and bringing some order into what is at present a very chaotic region. The number of streptococci present is from 100,000 to 1,000,000 per gramme of fæces and on the basis of the tests employed they were found to be divisible into no less than 40 groups. Thus while the number found indicates that the streptococci are properly selected as a "test" organism for sewage contamination their variety diminishes the value, as non-fæcal streptococci will probably be indistinguishable from some of the groups. The vitality of the streptococci found is important, as attempts have been made to estimate the date of the contamination by the presence or absence of these organisms. It was found that of the streptococci tested (25 in number) 64 per cent. died in sterilised tap water in ten days, while in sterile salt solution 62 per cent. survived for 20 days. We have, however, no information as to their vitality under natural conditions in sewage and drinking water.

Certain side issues bearing on a subject which has recently attracted much attention—namely, the contamination of oysters and other shell-fish in estuarial waters—form the third division of the report. The bacillus coli test being accepted as an evidence of sewage contamination, is there any risk of condemning shell-fish unnecessarily owing to pollution of the water, not by sewage, but by the excreta of birds and fishes? The excreta of gulls contained many bacilli coli and streptococci, while the intestine of the guillemot was free from these organisms, and no doubt the difference in the intestinal flora is due to the difference in the food of these birds. The gulls are garbage feeders and no doubt owe their bacilli coli and streptococci to feeding on sewage-polluted food, so that these organisms, though passed through the gull's intestine, are really of human origin. The fact that bacillus coli increases in the bird's intestine might tend to an over-estimate of the amount of pollution reaching the water and therefore of the amount of danger involved. The bacillus coli derived from human excreta may be taken as a test of the probability of danger from other organisms, such as bacillus typhosus and spirillum choleræ, but we have no knowledge that such a conclusion is justified when the bacillus coli is due to soiling by birds. In fishes caught remote from sewage pollution bacillus coli has been found but Dr. Houston's results seem to show that this is very rare and that the number of microbes is very small, so that fish can hardly be regarded as a disturbing factor in the analysis of estuarial waters.

The report deals finally with the effect of storage and filtration on the biological purity of a water and the results of a bacteriological examination of London filtered waters. It has long been known that storage will purify a water and that the number of microbes is diminished, but here and elsewhere in the report Dr. Houston evidently inclines to the opinion that the qualities of the organisms also undergo a change, and he advances the opinion, cautiously, it is true, that it is not unlikely that a specifically polluted water might become harmless owing to the loss by the specific microbes of their pathogenic properties. He appears inclined to attribute to this modifying action the comparative immunity of London from typhoid fever notwithstanding that the water-supply is contaminated with sewage and that the filtered

[1] The first and second notices were published in THE LANCET of Sept. 16th (p. 845) and 30th (p. 988), 1905, respectively.
[2] THE LANCET, Sept. 30th, 1905, p. 988.
[3] Local Government Board Reports, 1903–04, p. 388; and THE LANCET, Nov. 11th, 1905, p. 1400.

waters contain coli and coli-like organisms. With regard to the filtered waters the reduction in the number of organisms produced by the process was conclusively shown by the Franklands. In the present report the samples were tested as to the number of the test organisms already mentioned which were found. On the basis of Dr. Houston's suggested classification of waters considered in relation to their content of bacillus coli ("flaginac") 68 per cent. of the samples examined were first-class waters, while about 4 per cent. sank to the fourth class and would be grouped as objectionable.

The difficulty of finding really trustworthy evidence of the purity of drinking water is great but it is by such patient and careful work as is described in this report that we may hope to reach the desired end.

ORTHODOX MEDICAL GYMNASTICS AND MEDICAL MASSAGE.

THAT medical gymnastics, accompanied by properly applied massage, have assumed a very important position in the treatment of many ailments, both medical and surgical, is becoming more and more evident. Indeed, it is only necessary to think of the wide range of troubles which are included in, and associated with, rheumatism, heart disease, various forms of paralysis, and neurasthenia on the medical side, and sprains, strains, dislocations, fractures, and some conditions of curvature on the surgical side, to realise what a scope there is for such treatment. In such a pathological list we must also include all those cases of deficient or ill development which are in many instances greatly benefited by properly regulated drill and instruction in medical gymnastics. In answer to the wide demand thus indicated there has grown up a considerable "supply" of service directed to various therapeutic ends but no one can say that this supply has generally speaking been at all satisfactory.

There are of course a certain number of excellent masseurs and masseuses but the bulk of those who affect such titles, as well as the title of "medical gymnast," are of little practical use to the patients, and some bring great discredit on the whole line of treatment. The fault lies not always in the individuals. Putting charlatans aside, there are many who aspire to assist the physician and surgeon in these directions who have not had sufficient training, while such training in this country is but imperfectly systematised. On this account those who have received their instruction in Sweden, where the course to be gone through is a definite and also an exhaustive one, are in favour with the medical profession. A word of acknowledgment is due to two institutions in Sweden—viz., the Central Institute and Dr. Arvedson's Gymnastic Institute for Women—not only for presenting in a complete way the latest theory and practice of medical gymnastics but also for a scheme of training, in a proper sense of the word, a number of students. An institute for giving similar instruction to female students in this country has now been started in Kensington under the direction of two medical practitioners, Dr. Mary Coghill Hawkes and Dr. Mina L. Dobbie. The instruction of the students is carefully arranged on the lines that have proved successful at Dr. Arvedson's clinique at Stockholm, where the principals went through a full course themselves. The course extends over a complete year, and that time cannot be considered too long when a certain knowledge of anatomy, physiology, and hygiene, besides a practical acquaintance with the theory of movement and educational and medical gymnastics, have to be mastered. A visit to this institute found one class of students studying the theoretical part of their work, while another in a large room, fitted up with the necessary appliances, were carrying out the detailed movements and manipulations under careful instruction. Having perfected themselves by practice on each other they are allowed to assist the seniors in manipulating patients, selected from among those sent to the institute by medical men, the institute being open every morning for benevolent cases. The process of teaching, it struck us, was one of theory and practice properly combined, the rationale of every movement being recapitulated and dwelt upon in such a way as to make massage and gymnastic exercise appear purposeful. A case-book contained a history and full description of the condition of each patient at the commencement of treatment with notes as to the progress that had been made. The various exercises which had been ordered in each case were written down and carried out seriatim, all the work being carefully supervised by the principals so as to insure it being carried out with the important avoidance of undue strain on the patient. At the end of the course the student is required to pass an examination in "the theory and practice of Swedish medical gymnastics, massage, and anatomy, and to have previously obtained the certificate of the Incorporated Society of Trained Masseuses." This examination is carried out by Mr. James Berry, surgeon to the Royal Free Hospital, in conjunction with an independent authority upon Swedish gymnastics. On passing this examination a certificate is granted stating that the owner is qualified to treat patients "under the supervision of a registered medical practitioner." Patients sent for treatment to the institute are referred at intervals to their own medical adviser, without whose knowledge and approval no step is taken.

We have devoted considerable space to the notice of this institute, but it seems to us to be a carefully organised school the pupils of which should be distinctly useful to the medical profession and through that profession to the public. It is quite time that some such means should be available in this country for masseuses to be enabled to acquire a thorough knowledge of the Swedish system. It is time also that those who take up this line of work and advertise their willingness to assist the medical profession should realise that a course of desultory instruction for a few weeks is quite inadequate if it is desired to attain to a proper knowlege of the subject.

ASYLUM REPORTS.

Dorset County Asylum (*Report for 1904-05*).—The year began with 761 patients on the register and ended with 810. The increase took place chiefly amongst out-county and private patients. The admissions from the county numbered 125, of whom 104 were first admissions. 44 private patients were received. Not for many years have the cases admitted been so hopeless. Dr. P. W. MacDonald, the medical superintendent, comments on the practice of sending people over 70 and 80 years of age to an asylum simply because they are peevish and irritable. These cases are not fit to be amongst the insane proper. He says: "The growing disposition on the part of the home circle to be relieved of the burden of caring for the aged is much to be regretted." Of the cases admitted 13 per cent. were over 65 years and several were over 80 years. Dr. MacDonald rightly considers that the workhouse infirmary is the proper place for such cases if they cannot be kept at home. The subject of the deficiency of workhouse accommodation and the practice resulting therefrom of sending these old people to asylums is dwelt upon in some detail by the Commissioners in Lunacy in their last report, which was dealt with in THE LANCET of Nov. 18th, p. 1500. Cases of premature dementia are much more frequent now amongst the admissions at this asylum than formerly and cases of epileptic insanity have also greatly increased. This last-mentioned fact is connected with the considerable rôle played by heredity in the county of Dorset. Over 50 per cent. of the epileptics resident are of the congenital class. The continued rise in numbers resident at the asylum is ascribed less to any increase in the number of first admissions than to an accumulation of senile and feeble-minded cases. Amongst causes of insanity, hereditary predisposition was present in over 50 per cent. of the cases received. Alcohol is not regarded as responsible for more than between 3 and 5 per cent. of the cases of insanity occurring in Dorset. The recovery-rate for in-county patients was 38·9 per cent., which is surprisingly good considering the nature of the cases admitted. Of the total admissions (192) 76, or nearly 40 per cent., were in the most favourable class for treatment (first attack and within three months of admission). Of the recoveries (58) 47 had been in residence from one to nine months. In a number of these recoveries there is thought to be but little hope of permanency. Deaths during the year numbered 65, or 8·29 per cent. on the average number resident. Of these 30 per cent. were patients over 70 years of age, showing the accumulation of aged cases.

Excellent separate accommodation for private patients has recently been provided in connexion with this asylum and was largely taken up at the date of the report. The general health of the patients and the staff was good. Pulmonary tuberculosis was responsible for eight out of the 65 deaths and general tuberculosis for two, giving nearly 15·4 per cent. in all of deaths from tuberculosis, not a high proportion for an asylum. The report of the Commissioners in Lunacy is not published with the present report.

Looking Back.

FROM

THE LANCET, *SATURDAY*, Nov. 24th, 1827.

We have already admitted the power we possess of directing the mind to any particular subject of thought; but it is equally true, that we are *not* capable, by any voluntary exertion of clearing or evacuating of the mind, during the time we are awake, of its exciting assemblage of those abrupt phantoms and floating recollections that constitute reverie: for it will be seen that the possession of such power would enable us voluntarily to produce sleep. Thought being considered a voluntary exercise of the intellect: the only solution I am able to afford concerning the nature of these reveries, is their resemblance to those perceptive mutilations which ocular spectra present, and which are involuntary phantasms of a particular organ. But they are more intimately allied to our dreams, which are likewise involuntary presentations, and are the spectra, not of the mere organ, but of the entire intellect, and like our reveries, vary in consistency or abruptness in proportion to the degree of the relaxation of the will. In this unbraced state of the mental faculties, the subjects that intrude are transient and indistinct, the mere glimpses and shadows of effective thought. Under the influence of these day-dreams, we often find ourselves occupied on some subject, but are incapable of detecting how it was introduced; and we lose it without any knowledge of the manner of its escape. In many instances, these musings are blended with particular passions, and rendered more vivid by our hopes and apprehensions. Sometimes we indulge in the golden prospects of opulence and advancement, or fascinate the sense with the projected enjoyment of a higher rapture,—extend the views of ambition—and multiply the sources of gratification and happiness.—At others the scene changes to gloom and dismay, our mental wanderings assume a hateful tinge, we appear destined to exchange our present condition for the poor-house or the prison, and the probable future only suggests a succession of miseries and disaster. In these phantastic visions, which can only be accounted for by the relaxation of the attention, the defect of that energy which contributes to effective thought,—many of our species consume a considerable portion of their time, and according to the temperament that may prevail, their lives are chiefly passed in the ideal grasp of unattainable wishes, or in the despondent forebodings of a pusillanimous spirit. From the nature of the human mind, from its necessary union, in this state of being, with a living system; and from the due consideration of that condition, which we denominate *being awake*, contrasted with the phenomena of sleep: we shall be aware, that in our waking moments, some degree of mental activity must prevail. The very nature of vigilance, implies that susceptibility and readiness of the perceptive organs, that they become excited by their appropriate stimuli: and the connexion that subsists between our recollections will of course operate to continue the excitation. These reveries, notwithstanding they may serve to revive some memoranda, that would otherwise have faded, are the offspring of indolence and retirement:—the scattered spawn of that instability of character, which a generous intercourse and fair competition with the world would have fixed and matured. These illusive idols of the mind,—these broken toys of vanity and imagination, like the clouds that pass over us in succession, leave scarcely a trace of their figure; and although such day-dreams may be estimated by their idle votaries, as delightful pastimes, they will be considered by the philosophers, as the bane of salutary thought and a loss of our existence.[1]

[1] Excerpt from "Lectures on the Intellectual Composition of Man, delivered at the London Medical Society by Dr. Haslam. Lecture V. On Thought."

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

In 76 of the largest English towns 7804 births and 4641 deaths were registered during the week ending Nov. 18th. The annual rate of mortality in these towns, which had been 15·6 per 1000 in each of the two preceding weeks, declined last week to 15·5 per 1000. In London the death-rate was 17·3 per 1000, while it averaged 14·7 per 1000 in the 75 other large towns. The lowest death-rates in these towns were 4·7 in Hastings, 6·6 in Rochdale, 8·1 in Hornsey, 8·6 in Brighton, 8·7 in Hull, 9·0 in Burton-on-Trent, in King's Norton, and in Aston Manor, and 9·2 in Grimsby; while the highest death-rates were 19·1 in Stockport, 19·7 in Liverpool, 20·3 in Gateshead, 23·1 in Oldham, 23·3 in Tynemouth, 25·0 in Wallasey, and 30·7 in Bootle. The 4641 deaths in these towns last week included 337 which were referred to the principal infectious diseases, against 354, 374, and 371 in the three preceding weeks; of these 337 deaths, 107 resulted from measles, 61 from diphtheria, 49 from whooping-cough, 45 from scarlet fever, 42 from diarrhœa, and 33 from "fever" (principally enteric), but not any from small-pox. In Leyton, Southampton, Plymouth, Stockport, Cardiff, and in nine other smaller towns no death from any of the principal infectious diseases was registered; while they caused the highest death-rates in Tottenham, King's Norton, Wallasey, Bootle, Wigan, Preston, Rotherham, York, West Hartlepool, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Willesden, Aston Manor, Blackburn, Preston, and Rhondda; from scarlet fever in Rotherham and Merthyr Tydfil; from diphtheria in Reading and Grimsby; from whooping-cough in King's Norton and Bootle; from "fever" in Wallasey and Wigan; and from diarrhœa in York. No death from small-pox was registered last week in London or in any of the large provincial towns; and no cases of this disease were under treatment last week in the Metropolitan Asylums Hospitals. The number of scarlet fever patients in these hospitals and in the London Fever Hospital, which had been 4222, 4200, and 4154 on the three preceding Saturdays, had further fallen to 4120 on Saturday, the 18th inst.; 425 new cases were admitted during the week, against 506, 522, and 494 in the three preceding weeks. The deaths in London referred to pneumonia and diseases of the respiratory system, which had been 286, 340, and 383 in the three preceding weeks, further rose last week to 402 and were 41 above the number in the corresponding period of last year. The causes of 51, or 1·1 per cent., of the deaths in the 76 towns last week were not certified either by a registered medical practitioner or by a coroner. All the causes of death were duly certified in West Ham, Bristol, Leicester, Salford, Leeds, Cardiff, and 46 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, Manchester, Blackburn, Bradford, Sunderland, South Shields, and Gateshead.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 18·7, 17·6 and 17·5 per 1000 in the three preceding weeks, was again 17·5 per 1000 during the week ending Nov. 18th, and was 2·0 per 1000 in excess of the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 12·8 in Paisley and in Leith and 14·6 in Aberdeen, to 19·4 in Dundee and 22·3 in Greenock. The 588 deaths in these towns included 34 which were referred to measles, 19 to diarrhœa, four to diphtheria, three to scarlet fever, two to whooping cough, and two to "fever." In all 64 deaths resulted from these principal infectious diseases last week, against 54, 55, and 61 in the three preceding weeks. These 64 deaths were equal to an annual rate of 1·9 per 1000, which was 0·8 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of measles, which had been 19, 19, and 28 in the three preceding weeks, further rose last week to 34, of which 25 occurred in Glasgow, four in Dundee, three in Greenock, and two in Paisley. The deaths from diarrhœa, which had been 17, 17, and 16 in the three preceding weeks, increased to 19 last week, and included six in Glasgow, five in Aberdeen, four in Edinburgh, and two in Dundee. The fatal cases of

diphtheria, which had been six, six, and four in the three preceding weeks, were again four last week, and included three in Glasgow. The three deaths from scarlet fever corresponded with the number in the preceding week and included two in Leith. The deaths referred to diseases of the respiratory organs in these towns, which had been 152, 127, and 152 in the three preceding weeks, declined again last week to 130, and were 24 below the number in the corresponding period of last year. The causes of 19, or more than 3 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The death-rate in Dublin, which had been 17·9, 25·6, and 20·1 per 1000 in the three preceding weeks, rose again to 20·8 per 1000 during the week ending Nov. 18th. During the past four weeks the death-rate has averaged 21·1 per 1000, the rates during the same period being 16·6 in London and 16·4 in Edinburgh. The 151 deaths of persons belonging to Dublin registered during the week under notice were five in excess of the number in the preceding week and included five which were referred to the principal infectious diseases, against seven, six, and seven in the three preceding weeks; of these, two resulted from diarrhœa, one from scarlet fever, one from diphtheria, and one from whooping-cough, but not any from small-pox, from measles, or from "fever." These five deaths were equal to an annual rate of 0·7 per 1000, the death-rates last week from the principal infectious diseases being 1·4 in London and 1·1 in Edinburgh. The 151 deaths in Dublin last week included 25 of children under one year of age and 39 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons were slightly in excess of the respective numbers recorded in the preceding week. Four inquest cases and three deaths from violence were registered; and 69, or more than two-fifths, of the deaths occurred in public institutions. The causes of seven, or more than 4 per cent., of the deaths registered in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified:—Fleet Surgeons: J. H. Whelan to the *Barfleur* and A. H. L. Cox to the *Duncan*. Staff Surgeons: W. H. O. Garde to the *Egmont*, for the *Maine*, and H. H. Gill to the *Thetis*. Surgeons: E. S. Reid to the *Duncan*; C. R. Rickard to the *Victory*, for disposal (to be lent to the *Brilliant*); H. Cooper to the *Good Hope*, lent; G. M. Levick to the *Victory*, for disposal; D. H. Vickery to the *Jason*; M. T. Male to the *Hussar*; P. D. Ramsay and J. J. Shipsey to the *Victory*, for disposal; and P. T. Nicholls to Haulbowline Hospital.

ROYAL ARMY MEDICAL CORPS.

The following officiating appointments have been made in India in consequence of the departure of Surgeon-General Gubbin, M.V.O., on furlough: Colonel W. E. Saunders, C.B., to officiate as Principal Medical Officer, Eastern Command, and Lieutenant-Colonel A. W. P. Inman to officiate as Principal Medical Officer, Bareilly and Garhwal Brigades. Lieutenant-Colonel H. G. Hathaway, commanding the Station Hospital, Poona, is appointed to officiate as Principal Medical Officer, Bombay Brigade. Lieutenant-Colonel C. R. Tyrrell is appointed Staff Officer to the Principal Medical Officer of the Eastern Command.

ARMY MEDICAL RESERVE OF OFFICERS.

Surgeon-Major George M. Lowe to be Surgeon-Lieutenant Colonel (dated Nov. 5th 1905).

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Durham: Alan Ayre-Smith to be Surgeon-Lieutenant (dated Nov. 22nd, 1905).

Rifle: 2nd Volunteer Battalion the Royal Scots Fusiliers: Surgeon-Lieutenant L. Bowman resigns his commission (dated Nov. 22nd, 1905).

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

London District: London Companies: Captain L. N. Lloyd, D.S.O., R.A.M.C., to be Adjutant, vice Major T. W. Gibbard, R.A.M.C., whose tenure of that appointment has expired (dated Nov. 1st, 1905).

ARMY MEDICAL SERVICES.

The Government of India has sanctioned the provisional adoption of the following rules for the grant of specialist pay to officers of the Royal Army Medical Corps and Indian Medical Service:—

1. Specialist pay is an allowance to officers below the rank of lieutenant-colonel for special sanitary or medical work done for the State, which is not in the power of the ordinary medical officer to perform with the same efficiency as the specialist. It will not be a personal allowance, but will be granted only to the incumbents of certain specified appointments.
2. Specialist pay will not be given to officers of the I.M.S. in civil employ.
3. The services of specialists are absolutely at the disposal of Government in any way they may direct without further claim for remuneration.
4. Except in connexion with dental appointments the duties of specialist appointments must be carried out in addition to ordinary hospital duties.
5. Qualifications: Officers of the R.A.M.C. in India will be eligible for appointment as specialists under the qualifications laid down by the Army Council for the R.A.M.C.
6. The eligibility of an officer of the I.M.S. for specialist pay will be decided by the I.M.S., whose decision will be based either on certificates of a recognised instruction or by examination of the candidate. An officer may qualify as a specialist at any period of his service. The allowance will be admissible to any officer who is in a position actually to perform the duties for which it is given.
7. Appointments: There shall be 105 appointments in India for which specialist pay at Rs.60 a month shall be granted. Of these appointments 55 will belong to the R.A.M.C. and 50 to the I.M.S. in military employ. Selection for appointments will be made under the orders of his Excellency the Commander-in-Chief.

JAPANESE BULLET WOUNDS.

Dr. K. P. Konik, formerly chief of the Red Cross (Odessa) Hospital in the Far East, publishes in the Moscow *Surgery* particulars of 910 cases of bullet wounds received by Russians in action in the late war. The wounds were distributed as follows: head, 74; neck, 20; thorax, 129; abdomen, 51; upper extremities, 313; lower extremities, 323. After a careful tabulation of the character of the wounds, Dr. Konik remarks: "Bullet wounds that traverse the fleshy parts follow the most satisfactory course of all. The cases of bullet wounds injuring bones but not going right through have not been separately treated, there having been too few of such to lead to a definite conclusion. The worst results from the point of view of healing were met with in cases of injured bones of the upper extremities, especially the small bones of the wrists and fingers, these being the most dirty parts of the body. The entrance aperture of rifle bullets into the body is often so small that it is difficult to find it, especially when the wound has healed and the scab is removed. The entrance of the wound is usually smaller than the exit. Frequently, however, both entry and exit differ neither in size nor form which is usually round. The entry through skin lying near a bone is slightly larger than the calibre of the bullet. This is especially noticed in wounds of the shins. The exit when the bullet has passed through a bone without fracturing it, even if only a small round passage be made, is greater than the entry, probably because the bullet brings along with it some of the bone besides the change in the trajectory through the bullet meeting a serious obstacle. As to the rapidity of the healing of wounds at the entry and the exit of rifle bullets, observations taken of 100 cases showed that the former healed more quickly than the latter in the proportion of 60 to 40. It was found that 89 per cent. of bullet wounds heal under primary dressing, which is explained by the small calibre of the bullet making wounds so small as to reduce the area offered to septic influence to a minimum. About 90 per cent. of the cures took place under dry dressing and as considerable influence was ascribed to the healing power of the rays of the sun in the Boer war particular observations were made in this respect and it was found that wounds received in the summer healed more quickly than those received in the winter. It was more common in the summer time to see the dry scab covering the opening of the wound as the sufferers arrived in the hospital—a long way from the front—than in the winter. There was no question, as a result of careful observation, that the course of the wounds in the winter campaign 1904–05 was worse than in the summer. Some of the wounded arrived in hospital with their wounds covered with dry scab after they had done eight to ten days travelling and their wounds healed without any sign of inflammation. This shows that wounds received on the

field of battle should be handled as little as possible and that particular care should be exercised in the use of antiseptic solutions that may hinder the most rapid formation of the scab. The best first aid on the battle-field, says Strottmann, has certainly been proved to be dry dressing. With respect to injured bones, nothing proves their favourable course more than the statement that during the whole time—14 months—the hospital was at work, during which period over 200 such cases were treated in it, recourse was never had to serious amputation; and resection only took place on 20 occasions and that only for finger wounds. There were cases in which finger bones pierced through but not broken healed under primary dressing. Generally, however, such injuries were accompanied with suppuration. Wounds of the wrist bones and metatarsus were simpler and easily dealt with. The cure of injured small bones of the extremities followed pretty much the same course as in those of the face. They were often infected and required surgical aid." The author remarks in respect to contractions that nothing is worse for their cure than negligence. Injuries to the lungs took a long time to heal completely and quoting some cases Dr. Konik says these show that injuries to the lungs must not be treated lightly.

The King has appointed Staff Surgeon Arthur Reginald Bankart, M.V.O., R.N., to be an Honorary Physician to His Majesty.

Correspondence.

"Audi alteram partem."

THE PRESENT STATE OF MEDICAL PRACTICE IN THE RHONDDA VALLEY.

To the Editors of THE LANCET.

SIRS,—I notice in THE LANCET of Nov. 18th, p. 1506, another letter under the above heading in which the writer requests an explanation of one of my statements. Had I the pleasure of the correspondent's identity I should have found more pleasure in replying. I freely admit that since my appointment I have been so unfortunate as to come across three medical men who have seen fit to express a desire not to meet me (at the same time I have not lacked able consultants, both locally and otherwise); at such a time I have considered the patients' wishes, and without resentment stood aside and approved of the visits of my colleagues even to the taking over of the case. In my treatment I have no friends and no enemies and I could never allow a purely personal difference to interfere with the well-being of one under my care. More than one member of the British Medical Association has requested me to join the local branch but up to the present I have failed to see the benefit derived. With regard to the last paragraph in the letter I have yet to meet the man who is wholly contented with the position Providence has placed him in, and who is there amongst us but if he had the guiding of his own footsteps would not tread, if not a different, at least a higher path than the one he is now so laboriously climbing, for the essence of life is labour? Even I, the least of my brethren, have ambition and have found pleasure in picturing my plate screwed to one of the doors in Harley-street, but, thank goodness, I have enough common sense to make the best of my present position together with a modest and diffident eye to the future.

I am, Sirs, yours faithfully,

Pontnewydd, Nov. 19th, 1905. ALFRED W. HAYLES.

To the Editors of THE LANCET.

SIRS,—The majority of your correspondents in reference to the doctors' question in the Rhondda Valleys have in their letters shown themselves so transparently biased that they leave me with a suspicion that they are desirous, at a time when they think the colliery surgeons in difficulties, of forwarding their own interests—i.e., it is apparent that they for some reason or other, "probably each with an axe to grind for himself or others," are utilising this opportunity of further inciting and fanning a flame of agitation against the medical men who hold colliery appointments by endeavouring to mislead the readers of THE LANCET, and if possible the public generally, as to the true condition of matters medical in these valleys. May I be pardoned, therefore, "though not a Rhondda surgeon," if I endeavour to state a case from the other side. I venture to do so as I lived for many years in the Rhondda Valley, served the old apprenticeship to one who though a colliery surgeon was considered worthy of the gold medal of the British Medical Association, and for several years was assistant to the same surgeon whose practice was typical of those in that district. Briefly, the history of the development of the present system of colliery practice is as follows.

In the early days of works practice in Wales, in order that the workmen might be assured medical attendance when necessary, it was customary for the works owner to appoint the surgeon and to deduct, I think, 2*d.* per week from each man towards his salary. This system, which gave the men no voice in the selection of their own doctor, was manifestly so unfair that the men decided to take the appointment into their own hands. Thus we find that when the development of the Rhondda Valleys was in its infancy the workmen of a colliery, "which at that time employed but a small number of men," usually asked the nearest medical man to take them at a stated payment for each man per week. When, however, the number of men employed at the various collieries became greater and the medical men more numerous it was decided, in order that they might obtain the services of a surgeon most acceptable to them, that the appointment should be made by ballot and that the medical man receiving the majority of votes should be the colliery surgeon.

This is the system at present in vogue and appears fair. All public appointments are now carried out upon this principle and if right in these why not in colliery appointments where the procedure is similar? When vacancies occur candidates are asked to send in their testimonials. One of your correspondents asserts that there are abuses in the methods of using testimonials; he has made the astounding discovery that there is canvassing. A weak man will often resort to the methods which your correspondent condemns, but that such a course is the rule in these elections I deny. A surgeon, having been elected by the measures which the men themselves have agreed upon, has to my mind an undoubted right to consider the appointment his "subject to a reballot whenever the men desire it upon showing a valid reason—e.g., 'neglect of duty'—for such a course," in exactly the same light as public vaccinators, medical officers, and medical officers of health have a right to look upon their appointments. Latterly, medical men who have not been successful in obtaining a colliery appointment or who have elected to become *bonâ-fide* private practitioners in the mining districts have settled down. What course does one of these gentlemen who comes under the former category pursue when he does start, probably in close proximity to a colliery surgeon? Does he respect and hold aloof from his fellow practitioner's appointments? Does he go honestly and steadily about his work, endeavouring to establish for himself a practice? Occasionally Yes, but far more frequently No, must be the answer to these questions. Rather does he worm himself into the confidence of his opponent's supporters, he finds that his opponent has enemies, he finds it easy to form a clique, he uses this as the thin end of the wedge, he becomes aggrieved at what he calls his opponent's unfair monopoly, and whines whenever he can get an audience. He suggests that appointments should be open, that the workmen are not treated properly, that they are victimised, that the system is abused, and, in fact, endeavours by every dirty wile and veiled suggestion to convert his neighbour's practice into a pandemonium of suspicion and discontent. In the hope that he will obtain, What? A larger practice? Perhaps. At any rate he glorifies himself in that at least he has made his neighbour's existence as a colliery surgeon almost unbearable and impossible.

Returning once more to the system of payment we find that the colliery surgeon was originally paid 2*d.* per workman per week but who in addition was paid 10*s.* for each case of midwifery. This system lasted for some years but a compromise, if I may so call it, was arrived at whereby the payment apparently upon a fairer basis became 3*d.* in each pound earned by the men and for this poundage they received medical attendance, medicines, and midwifery. Everything

is paid for by the surgeon who during stoppages due to sickness, holidays, and strikes receives no medical fee but attends as though fully paid. According to the original agreement the payment made by each man was for attendance upon himself, his wife, and children until they left school—or, in other words, until they were old enough to earn for themselves. Now attendance appears to be claimed as a right by all the members of the family, adult as well as young, whether residing at home or not.

When in the Rhondda Valley it was my impression, and is so still, that the working classes there were treated by their medical men in a way that was absolutely just and was generous in the extreme. For their poundage they received attention such as I have never seen given in a working-class private practice, for the very good reason that no one could in that position afford to pay for it, even at the lowest private practice rates; they had the services of men whose experience was far above that of the ordinary practitioner; their medicines were more than sufficient for all emergencies. I was, and I believe all assistants are, allowed to order any drug that I thought necessary; they came to the dispensaries for pills, plasters, oils, linseed meal, &c., which they always got at their own ordering; they wasted a large proportion of the medicines and dressings which they obtained; they sent for their doctor as frequently as not when not required and at all odd times of day and night; they did not hesitate to make their doctor cover the same ground unnecessarily four or five times a day. And in spite of the stupendous abuses to which this poundage system lends itself there are those who would have us believe that the colliers are unfairly treated. As I have already said, my impression was, and is, that in no district and in no circumstances are workmen better treated than in the Rhondda Valley. To my mind no class of men is more thorough in work, so patient in the most trying circumstances, "nor are there in any class fewer instances of a competency being made" than the colliery surgeons of South Wales. The life is full of hopeless, thankless drudgery, and gratitude is unknown.

There is at present a tendency to run the medical man by a committee—i.e., a committee is formed at a colliery and is known as the doctor's committee. The poundage retained is handled by this committee. The intention is to pay the assistant, keep its own drugs, &c., and pay its chief medical officer £400 or £500 per annum. For this magnificent salary the doctor is expected to give his whole time to his practice; he is expected to maintain himself and his family in a fitting manner; he is to be at the beck and call of this committee and the workmen whose servant he is and who will not be slow to tell him so; his subscription list must extend to every local Bethel and charity, deserving or otherwise; he must apply for a day off; he must work for them day and night, weekday and Sunday, well or ill, year in and year out. He has absolutely no social pleasures; he is usually as cut off from intelligent society as if in Central Africa; he is not to save money but is to be one by whom money is made. The life to any man of self-respect would be unendurable and no man who has any regard for himself or his family can or will accept an appointment on these conditions. Men will be found for these appointments "some, perhaps, who do not know until too late the life in store for them," men who have neither the backbone to fight for themselves nor the respectability to resent lending their lives to help forward a system which is low in its conception. The time has undoubtedly come for united action. If the men are tired of the present system, if they suspect that they are being unfairly treated, then I say unhesitatingly, let the methods be changed. The people have so far abused the poundage system that to-day it has become tyrannical and intolerable. The emancipation of the colliery surgeon would be a welcome boon. Should, however, an effort be made further to curtail the liberties of the medical profession by a resort to the suggested management of medical men by committees then undoubtedly the time has come when no system of contract should exist. The miner can afford to pay, as "Retired Practitioner" suggests, 2*s.* 6*d.* for consultations and medicine at the surgery and 5*s.* for each visit at his home. This is the solution of the difficulty and the sooner we all realise that fact the better.

I am, Sirs, yours faithfully,

Nov. 11th, 1905. X. Z.

THE TREATMENT OF OTITIS MEDIA.

To the Editors of THE LANCET.

SIRS,—Early diagnosis is of the utmost importance in all cases; where a doubt exists, as sometimes happens when one sees an infant or a young child, an anæsthetic should be given and a proper examination made. In a simple case of pain, loss of hearing, with some hyperæmia of the tympanum, counter irritation over the mastoid by means of mustard leaves, with some application to the drum such as adrenalin chloride 1 in 2000 and cocaine 4 per cent., frequently gives relief. If a catheter can be safely passed and a steady stream of medicated compressed air or oxygen injected into the Eustachian tube the case will quickly clear up; should it be deemed inadvisable to use a catheter then simple inhalations of volatile antiseptics and iodine may be tried. The ordinary Politzer bag is insanitary and intermittent, and therefore not recommended. Chloroform inhaled for a moment or two relaxes the tube and allows air to enter and restore tympanic equilibrium. The use of compressed medicated oxygen is not contra-indicated when the tube is obstructed and its use may help to relieve the obstruction without having recourse to the catheter. I give my oxygen by means of a Stoker's bag attached to a nebuliser containing antiseptics; to the nebuliser are attached a tube and nasal plug either with or without catheter. By pressing the bag I am able to inject the medicated vapour at any pressure; such vapour helps to disinfect the naso-pharynx, which must be useful.

Where pain persists and the membrane bulges paracentesis should be performed. This operation should be done on surgical lines and effective drainage secured. The suction speculum is very useful in order to clear the meatus of thick fluid; the compressed vapour is useful to clear the Eustachian tube and to medicate the middle ear. The after-treatment of these cases depends on the character of the discharges. They should from the first be treated as surgical cases requiring good drainage, strict antisepsis, and constant attention. In those cases where a bloody discharge persists and the temperature gives cause for anxiety combined with parietal pain, a simple mastoid operation which leaves the middle ear intact should be recommended; in such circumstances delays are dangerous. Certain forms of otitis are capable of specific treatment—viz., those arising from scarlet fever and tonsillitis; these cases are greatly helped by injections of antistreptococcic serum. Even post-diphtheritic cases are helped by this serum.

The following remedies have been found useful in otitis media: Dry heat in the form of hot wool, hot bottles, Japanese muff warmers, or electric lamp in a cone of asbestos millboard; cold by means of ice bags or Leiter's coil; irrigation of the external auditory meatus by warm fluids, such as 1 per cent. solutions of carbolic acid or chloretone and weak solutions of permanganate of potash. Warm solutions should be applied by means of an irrigator with a nozzle having a good return through the meatus; they should be frequent and steady, not intermittent or jerky. Counter irritants: mustard leaves, blisters, or bleeding by means of leeches. Iodine, 30 minims in hot water at a temperature of 150° F., combined with compound tincture of benzoin or menthol, is a useful means for cleaning the naso-pharynx and relieving other symptoms. All internal medication should be directed to improving the patient's general condition and any intercurrent disease must be dealt with on rational lines. Calomel is useful as a purge; phenacetin, opium, gelsemium, and belladonna have their uses as anodynes and analgesics. Many of the difficulties of otitis are avoided by early treatment but as it is a secondary disease, a follower of many zymotics, each case has to be dealt with on its merits.

I am, Sirs, yours faithfully,

Folkestone, Nov. 18th, 1905. LENNOX WAINWRIGHT.

POSTURE IN EXAMINATION OF THE HEART.

To the Editors of THE LANCET.

SIRS,—I have read with interest your report in THE LANCET of Nov. 18th, p. 1473, of Dr. W. Gordon's valuable paper on this subject, read before the Royal Medical and Chirurgical Society, and regret that I was not present to hear his fuller statement. The subject is important, inasmuch as its appreciation may enable us at times to avoid fallacies which might

lead to erroneous conclusions. Dr. Gordon offers certain explanations of the fact that the sounds and dimensions of the heart vary according as a person stands or lies. As these are offered tentatively it is not necessary to discuss them. Dr. Gordon, however, remarks in his paper, as published in the current issue of the *British Medical Journal*, that "the change ..... is strikingly constant, so much so that it seems curious that it has not been observed before" (p. 1319). In making this statement I believe him to be mistaken, for it has been both observed and published. It is, however, certainly curious that it has not been more frequently commented on.

In writing of the examination of the heart by percussion Dr. P. M. Latham remarks in his classical lectures (Collected Works, New Sydenham Society, p. 10), "It is well to be aware that the erect posture is more favourable than the recumbent for making this dulness or diminished resonance perceptible to the ear," and proceeds to give his explanation of this fact. The influence of posture in this connexion has no doubt been well recognised and at times investigated since Latham's day. For instance, the late Dr. Octavius Sturges in his excellent monograph on Heart Inflammation in Children states (p. 34) that in a boy eight years of age, who was placed "head downwards" for five minutes, "the cardiac area (which had been carefully marked out beforehand) was in no way altered." This monograph was a reprint of the Lumleian lectures of 1894.

The influence of position, as Dr. Gordon remarks, is less noticeable in health than in disease. Like him, I was unaware of any particular observations on this point when I wrote on the subject in 1897,[1] but at that date I dealt with the matter rather fully and illustrated my remarks by diagrams. I then stated: "Whatever method be pursued in determining the dimensions of the heart by percussion it is of the first importance that the posture of the patient should, so far as possible, be exactly the same on successive occasions when this point is under examination." I proceeded further to show the alterations in the dimensions of the thorax in recumbency as compared with those observed in the erect position, and the data I obtained by percussion and figures were essentially the same as those obtained by Dr. Gordon. I found also that in recumbency the upper limit of hepatic dulness fell considerably as compared with the point it occupied in the erect position and that a minor difference of markings on the surface of the body could be accounted for by the *skin* altering its position by sliding slightly downwards when the patient stood up (p. 33).

It is unnecessary for me to write further in this place of alterations in the pitch of cardiac sounds under conditions of rest and exercise, but this point was also dealt with in the book I have mentioned (p. 193, &c.). I have ventured to state these facts in the interests of historical accuracy, but their existence, of course, in no way lessens the perfect independence of Dr. Gordon's observations nor the clinical interest of his conclusions.

I am, Sirs, yours faithfully,

ALEXANDER MORISON.

Upper Berkeley-street, W., Nov. 19th, 1905.

[1] Cardiac Failure, &c., London, Rebman Publishing Co.

THE ANNUAL MEETING OF FELLOWS AND MEMBERS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

To the Editors of THE LANCET.

SIRS,—The anomalous character of these meetings, as interpreted by the Council, was never more evident than on this last occasion. A legal gentleman, apparently imported for the occasion, advised the President not only that the amendment under discussion was out of order but that the resolution, which had been duly sanctioned by the President days before and placed in the agenda, was also out of order! In face of this the President took a vote on it and with the assistance of his colleagues on the Council defeated it. We wished to move the adjournment of the meeting but were informed that this, too, would be out of order. So here we have a meeting which, if the view of the Council is correct, cannot be adjourned and whose resolutions are of no effect. Truly, as the President himself said of it 20 years ago, "it is a solitary instance." But what if the view of the Council is *not* correct? What if these meetings turned out, in spite of the strenuous denials of the Council, to be of a corporate character? In that case some curious results would follow. All the elements of the corporation are represented: President, Council, Fellows, and Members—even down to the mace—and the meetings are "duly summoned." A leading authority on corporations says:—

> The power of the majority to bind the society is one of the first principles of corporation law, even in cases where the corporation has a head. It is even held that only by Act of Parliament can this rule be avoided. The binding majority is that present at a corporate meeting duly summoned. In corporations which have a head (as colleges) the head cannot veto the resolutions of the majority.
>
> It cannot be disputed (said Lord Hardwicke) that whenever a certain number of persons are incorporated a major part of them may do any corporate act; or if all be summoned and part appear a major part of those that do appear may do a corporate act, though nothing be mentioned in the charter of the major part.

It would be further remarkable if by holding these meetings for more than 20 consecutive years the Council had re-established "ancient rights" for the Members of the Corporation. Readers of "The Life and Times of Thomas Wakley" will remember that he described the College in his time as "a constitutionally rotten concern, badly behaved, and of evil pedigree." No doubt it has much improved in many ways since Wakley's day, but the position of the Members remains exactly what it was then.

I am, Sirs, yours faithfully,

Nov. 20th, 1905. W. G. DICKINSON.

*** We are in all sympathy with the Members of the Royal College of Surgeons of England in their desire to have a voice in the management of their own affairs. The present President of the College would, we feel assured, give a most sympathetic hearing to any properly organised scheme for reform.—ED. L.

THE INVERSE RELATIONS BETWEEN PYREXIA AND GOUT.

To the Editors of THE LANCET.

SIRS,—In an article in THE LANCET of Nov. 18th, p. 1471, Mr. Joseph Birt describes a case in which freedom from general goutiness and neuritis of eight years' standing rapidly followed an attack of diphtheria. He refers also to a case in which three years' freedom from acute recurrent gout followed pneumonia. Such inverse relationships attracted much attention and led to much speculation in past years before extreme specialisation had obscured the influence of disease upon disease. Braun pointed out that "gouty patients often remain for a long time free from paroxysms after a febrile malady of however foreign a nature."[1] And among recent writers Henry M. Lyman shows that "various acute febrile diseases and inflammations like tonsillitis, bronchitis, rheumatism ..... afford great relief from the constitutional symptoms of arthritism."[2] Even vaccination has a like salutary influence (Heinrich Stern[3]) and many other extracts could be given having the same bearing. These all go to prove that the relief attained is due to the increase in the rate of combustion associated with pyrexia. But acute gout itself is a pyrexia and the increase in combustion and carbonic acid evolution has been demonstrated by Magnus Levy. Hence "the improvement which succeeds the attack is, as a rule, proportionate to the degree of febrile reaction (Braun[4]) and drugs which cut short the arthritic paroxysm and so the pyrexia, tend to prevent the amelioration in general health, and to shorten the ensuing period of freedom from arthritic attacks which commonly follow the uninterrupted attack (Sydenham, Trousseau, Gardner, Fothergill, and others).

It would follow that a retardation of combustion is a fundamental factor in the pathogenesis of gout and in a work just issued[5] I have attempted to show that such a modification of metabolism is a fundamental factor but that its action is indirect. The retardation of combustion leads to an unphysiological accumulation in the blood of unoxidised or imperfectly oxidised carbonaceous material (hyperpyræmia). The primary carbonaceous accumulation involves a secondary progressive accumulation of uric acid from imperfect renal elimination. The uricæmia so induced finally leads to extravascular deposition of urates, which thus becomes the proximate cause of the gouty pyrexia.

[1] On Gout, Gairdner, 1860, p. 28.
[2] Pepper's American Text-book of Medicine, vol. ii., p. 140.
[3] Medical Record, August, 1901.
[4] On Gout, Gairdner, 1860, p. 28.
[5] The Food Factor in Disease (Longmans).

The further steps in the conservative re-action are clear. The increase in combustion involved in pyrexia disperses the carbonaceous accumulation; this permits of free renal elimination of uric acid, the blood recovers its solvent power, the arthritic deposits are reabsorbed, and complete convalescence from ills, local and general, is assured.

All the steps above referred to with the exception of the first are well known. It requires but the recognition of the blood state termed hyperpyræmia—and in support of this a large amount of independent circumstantial evidence can be adduced—to render the acute gouty paroxysm one of the simplest of the conservative reactions of the organism. Acute gout would still be a disease, but in accordance with the conception recently formulated by Sir Frederick Treves it would be a disease salutary in intent. Furthermore, it would be a disease which more often than not is salutary in effect. I am, Sirs, yours faithfully,

London, W.C., Nov. 20th, 1905. FRANCIS HARE.

ASSOCIATION OF MEDICAL DIPLOMATES OF SCOTLAND.

To the Editors of THE LANCET.

SIRS,—Permit me space in your valuable journal to call the attention of those holding the qualifications of the Royal Colleges of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow to the good work the above association is doing. It is a comparatively young society and up to the present has achieved a great success in the following ways: the opening up of appointments to those holding the qualifications in question; the securing of a distinct academic costume; and again this week a deputation is to attend the Royal College of Surgeons of Edinburgh to present a petition for the alteration of the title of "Licentiate" to that of "Member." Is not this a good record of work done? Let me urge upon all who take an interest in these affairs to join us, so as to strengthen our hands and encourage us in our endeavours to promote the welfare of our colleagues. Our able honorary secretary, Dr. David Walsh, 18A, Hanover-street, London, W., will gladly forward conditions of membership.

I am, Sirs, yours faithfully,
CLAUDE ST. AUBYN-FARRER,
London, W., Nov. 20th, 1905. President.

"RETURN" CASES OF SCARLET FEVER.

To the Editors of THE LANCET.

SIRS,—In reference to the leading article on the above subject I would like to draw attention to pp. 612-13 of Nothnagel's "Practice of Medicine" where, in the article on scarlatina, it is said that at the New York Hospital for Scarlatina and Diphtheria there has been *no history of contagion from a discharged patient* (p. 613). Is the routine disinfection in London similar to that described for New York? I am, Sirs, yours faithfully,

Nov. 20th, 1905. VOLENS.

FENWICK *v.* THE "ACCRINGTON GAZETTE."—On Nov. 18th and 20th at Manchester, before Mr. Justice Bray and a special jury, the case of Fenwick *v.* the *Accrington Gazette* Co., Limited, was heard. The libel in question alleged incapacity on the part of the plaintiff. Early in March he was called to attend upon two children, one of whom was in bed with a normal temperature but with a rash. This rash was diagnosed by plaintiff as chicken-pox. The boy was treated accordingly and recovered. The second boy was treated for influenza but on March 29th symptoms of small-pox arose. Then the medical officer of health was communicated with and the two boys, the father, and two other children were removed to the small-pox hospital. The health committee then decided to prosecute Mr. Fenwick for not having notified the cases. He thereupon wrote to the health committee vindicating his diagnosis. The *Accrington Gazette* then published an article in which Mr. Fenwick's letter was spoken of as "a blatant attempt to bluff the health committee." Further, Mr. Fenwick was accused of trying to hush the matter up and of being so incapable that he did not know the difference between small-pox and chicken-pox. Mr. Fenwick admitted that he had made a mistake and the health committee did not prosecute him. The defendants withdrew the plea of justification and the jury gave a verdict of £1000 for the plaintiff. Judgment was given accordingly.

THE

ORGANISATION OF THE MEDICAL PROFESSION IN SWITZERLAND.

(FROM OUR SPECIAL COMMISSIONER.)

The Legislative Struggle at Zürich.—The Benefit Society of Basle.—Solidarity between the Senior and Junior Practitioners.—Establishment of a Minimum Medical Fee.

IN Switzerland during the last few years considerable progress has been accomplished in the work of organising the medical profession. Every canton and nearly all the sub-districts have local medical societies. In the rural parts of the country these societies can barely contrive to meet oftener than twice during the course of the year. In the large towns it is, of course, easier to meet more frequently. Formerly, and as was the case with the various local medical societies in England, these occasional meetings were held solely for convivial purposes and for the reading and discussion of scientific papers. Of late years, however, a great change has taken place. The medical profession is none the less devoted to the study of science because it now realises that it is first of all necessary to secure the means of existence. Therefore these various medical organisations commenced to discuss economic questions and during the last three years these have more and more encroached on the time and attention that were formerly devoted to scientific topics; indeed, this is so much the case that in some parts of Switzerland it was thought necessary to duplicate the societies. Thus, the Medical Society of Geneva has created the Association of the Practitioners of the Canton of Geneva and the mission of the latter body is to deal exclusively with economical and ethical questions. So also there is at Zürich an off-shoot from the parent medical organisation called the Young Practitioners' Society. Scientific papers are occasionally read before this body but the greater part of its time is devoted to the study and discussion of the phases of the great current economic problems that affect the medical profession. At Basle, on the contrary, it was decided that it would not be wise to separate. Some medical men are more anxious to meet for the purpose of discussing economic problems. To many, unfortunately, this is a matter of necessity, as they are the victims of the modern evolution of economic forces. Others, on the contrary, whose position is not so directly menaced, are more anxious to discuss purely scientific topics. But it is most essential that both these sections of the medical profession should support each other and move forward hand in hand. To separate them is to make the one lose influence over the other, and this tendency has been successfully resisted at Basle.

As an example of the work done there is at Zürich a sect called the Nature Cure Party. It has acquired a certain popularity which, in any case, was sufficient to enable it to introduce in the local legislature a motion in favour of sanctioning the free practice of medicine. A few years ago there was no organisation capable of fighting such a proposal. Now, however, the Zürich medical societies launched out on the warpath and took so active a part in the political propaganda that when the proposal was submitted from the cantonal legislature to the popular vote it was defeated. The general opinion is that but for the recent organisation of the medical profession as a militant body attending to its economic interests, this proposition would have been carried, with the result that anyone, whether qualified or not, would have the legal right to practise medicine.

At Basle there is a similar odd sect. It is known as the Adventists of the Seventh Day and originates from the United States of America. Of the 120 practitioners at Basle all except four joined the medical organisation. One of these four served the Adventists and complications of no ordinary character were anticipated when by some lucky inspiration the spirit moved the entire sect to leave the canton of Basle. It went to Gland in the canton de Vaud. Here there are few inhabitants, fewer medical practitioners, but there are very good vineyards and some excellent wine. All the members of the Basle Medical Society have signed a contract by which they pledge themselves not to accept less than the minimum fee. This is fixed at 1 franc, or 10*d.*, for a consultation at the practitioner's surgery and 2 francs for a visit at the patient's home.

This does not include medicine. Then there is the great question of club practice or contract work. The natural desire is to enforce the minimum for contract as well as for ordinary practice. A rule was passed calling upon the members of the medical society not to accept contract work for less than the above minimum and if they could not come to terms then they were to submit the proposal made to the council of honour. This body would judge whether the conditions should be accepted or not. In no case is an individual practitioner to decide on his own authority what remuneration he will or will not accept. This must be settled in the best manner possible for the protection of the interests of the profession as a whole and not of the individual. The attempt to enforce these principles has occasioned a conflict with a very important benefit society called the Société Générale de Soins aux Malades, which has about 22,000 members. Some of the members are working men, others are small tradesmen, and altogether about 50 practitioners are employed by this society. The pay given is 60 centimes per consultation and 1 franc 30 centimes per visit to the patient's house. It will be noted that these terms, 6*d*. and 1*s*. 1*d*., are very much higher than the fees obtained by the medical officers of a great portion of the clubs and medical aid associations of England. They are, however, inferior to the Basle minimum. What, then, was to be done? By attending patients at these rates the medical officers of this society were undercutting the medical practitioners who were not attached to the society. This manifestly was not fair. The conditions must be equalised. Either the benefit society must raise its fees to the rate paid outside its ranks or else it must allow all the medical practitioners who chose to do the work on those conditions to enroll themselves as its medical officers. If the benefit society will not accept all the medical practitioners of the town then those whose services it has accepted will charge the patients the usual minimum fee of one and two francs. Thus the medical practitioners who hold the best positions are willing to go on strike for the sake of the juniors in the profession. It was a question of allowing the juniors to break away from the medical society and to form a separate society which would take economic questions in hand. In time its members would compete against the senior and more prosperous members of the profession. The latter shrank from the responsibility of occasioning so disastrous a division. They preferred taking their part in the struggles to come, though individually they are comfortably situated and have no urgent need of securing any modifications in the conditions of medical practice. The benefit society naturally strove to enroll as its medical officers the best known and most popular practitioners of Basle. By joining the benefit society the services of these more eminent practitioners can in many instances be secured for 60 centimes at their surgeries and 1 franc 30 centimes at the patient's home. Then at the same time the Basle Medical Society says to the junior and almost unknown practitioner that a minimum has been established and he must not see patients for less than one and two francs. Such a position is untenable. Either the senior practitioners must come up to the level of the junior practitioner and ask for the same minimum fee or the junior practitioner must also be enrolled on the staff of the benefit society, so that those of his patients who complain in regard to the minimum fee can be told that by joining the benefit society they would secure his services for less. The senior practitioners were quite satisfied as matters stood but they were broad-minded enough to understand that they could not separate their individual interests from those of the profession at large, so they are now resolved to obtain for the junior members of the profession the same advantages or privileges which they themselves enjoy.

The Basle benefit society with which this difficulty has arisen charges a higher rate of subscriptions to its members than that which prevails in many similar British friendly societies. One very important point is that no difference is made between men and women members. In England, especially in regard to the better class friendly societies, such as the Oddfellows, the argument has been that women should not be admitted at all. The medical officer takes his stand on the principle that when the bread-winner is ill he is willing to attend him for weekly payments, which in no case must be less than £*s*. 4*d*. per annum or 1*d*. per week. But, on the other hand, and as a compensation, when the bread-winner is in full work and earning his wages, then the medical officer expects to be called in as a private practitioner to attend to the wives and children of the members of the friendly society and to receive the ordinary fees. In a word, he attends the bread-winner at a reduced fee and hopes as a compensation to attend the other members of the family for the ordinary fee. But a number of British friendly societies have attempted to form female lodges and have enrolled women for half the ordinary subscriptions, thus offering their medical officers only 2*s*. 2*d*. a year or ½*d*. per week for attending the women. This attempt has occasioned many disputes. At Basle women are admitted but they pay as much as the men, and both men and women pay a great deal more than is generally the case in England. The charge for all adults above 16 years of age and of whatever sex is 1 franc 15 centimes, or a fraction more than 11*d*., per month. But if we consider the rate of wages paid in Switzerland, and also the fees paid to the medical profession, where it may well be said that the 20 franc gold piece, though only worth 16*s*., goes quite as far as the British guinea, then, all proportions being duly observed, it may be said that where the Swiss can pay 11*d*. a month the English can pay 1*s*. 4*d*. per month. In regard to families the monthly subscription for the first child is 5½*d*., for the second child 4*d*., for the third child 3*d*., and for each of the other children 2*d*. Though it will be seen that the subscription is much higher than is usually charged in England the advantages are greater. As in England, the members have the usual local medical attendance but those cases which are judged suitable for such treatment can be sent to the sanatorium at Davos Platz for the outdoor and high altitude treatment of tuberculosis. The maximum sojourn at Davos Platz is six months. Then they can be sent to a lunatic asylum also for a maximum of six months, and to an ordinary hospital for one year. There are also at Basle numerous funds which give sick allowances and other benefits. These various societies associate themselves with the Société Générale de Soins aux Malades, which provides the medical aid.

In regard to the very difficult question of the means available to maintain discipline within the ranks of medical organisations the medical practitioners at Basle have not discovered any new weapon or method. Some time ago a local practitioner wrote various anonymous letters abusing some of his colleagues. On this offence being brought home to him no satisfactory explanation or apology could be obtained. The delinquent was consequently expelled from the Medical Society—a penalty which entails the refusal to consult. A little later this medical man applied to a well-known practitioner for a second opinion and was met by a refusal. He then called on another practitioner who, less mindful of the newly created obligations, went and saw the patient. Thereupon the first practitioner who had refused to consult entered a complaint and the matter was brought before the council of honour instituted as the supreme tribunal to safeguard the interests of the profession. The council pronounced its verdict and decreed that all professional relations were to cease with anyone who had been expelled from the Medical Society. No one was to consult with such a person unless it was in an urgent case where there was danger to life.

At Lucerne the Medical Society has drawn up a very elaborate tariff for various operations. It has also established a minimum fee which is higher than that of Basle—namely, 1 franc 50 centimes (1*s*. 2½*d*.) per consultation at the surgery and 2 francs 50 centimes (2*s*.) per visit at the patient's home. In the rural districts a reduction of 25 per cent. is made on this tariff and in the German-speaking cantons of Switzerland in localities situated at some distance from towns the medical attendants have to supply medicine.

(To be continued.)

MEDICAL MEN AND MUNICIPAL HONOURS.—Mr. R. E. Roberts, L.R.C.P., L.R.C.S. Edin., L.F.P.S. Glasg., has been elected Mayor of Bootle. He is a native of Bangor, North Wales, and was a student at the University College, Liverpool. He was elected a councillor for the borough of Bottle in 1898 and an alderman in 1903. He has occupied the position of chairman of the hospital subcommittee, deputy chairman of the health committee, deputy chairman of the education committee, and chairman of the school management (education) subcommittee.—A list of medical men who have this year been appointed to the office of mayor was published in our last issue.

THE DISINFECTION OF AMBULANCES IN BERLIN.

(FROM A CORRESPONDENT.)

THE high state of efficiency to which the disinfection of ambulances has been brought in Berlin is the result of many years of constant agitation, in which the well-known surgeon, Professor von Bergmann, took a prominent part. An article on this subject was published in THE LANCET of Oct. 7th, p. 1064. The present system has been inaugurated by the First Aid Society, which comprises the so-called "Sanitätswachen," the accident stations of the Red Cross, and the so-called "Rettungsgesellschaft" (life-saving society); unfortunately it has not yet been universally adopted, but still it marks a decided advance on the old methods, which, as prominent German medical men admit, were behind those of London, Paris, and Vienna and which, to quote Professor von Bergmann, could not be reconciled with the principles of modern hygiene. Formerly the conveyance of patients was entirely in the hands of contractors who were only compelled by the police to disinfect their ambulances after being used for infectious cases. There were three classes of ambulances for the use of which there was a graduated scale of charges—namely, the first class, or "Salonwagen," provided with indiarubber tyres and luxurious internal arrangements; the second class, fitted up in a somewhat simpler style; and the third class, for the poor, without tyres and often without springs. A few years ago a man was taken to the Municipal Hospital at Charlottenburg, whose case the medical staff were unable to diagnose exactly. He died and was afterwards found to have been suffering from plague. The disease not having been certified to be infectious, the ambulance in which the man was taken to the hospital was not disinfected, a sanitary shortcoming fraught with such danger to the public that the First Aid Society made energetic representations to the contractors to disinfect their ambulances each time after use. This the contractors found that they could not do without pecuniary loss and so the First Aid Society resolved to organise an ambulance service of its own. The society decided that its ambulances must be of the best construction, fitted with springs and indiarubber tyres, while the interior must conform to the requirements of modern hygiene and technical knowledge; that all ambulances must be of a uniform pattern; that after every journey the ambulances must be thoroughly disinfected in special disinfection yards; that the entire staff of attendants must be instructed in the transport of the sick; and finally that the whole service must be under medical control.

The First Aid Society has three ambulance depôts in Berlin, each under a medical director and connected by private telephone lines with the various police and accident stations in the city. At present there are about 20 ambulances distributed between the three depôts. Two specially trained disinfectors are attached to each depôt. The ambulances are roomy and of good appearance. The interior is varnished with a durable composition and all corners, projections, or sharp edges have been avoided as far as possible. On one side of the ambulance is the portable bedstead, easily removeable and having good springs. On this is the litter, simply consisting of a light iron frame over which a canvas covering is stretched. There are two classes of ambulance—namely, the saloon vehicle and the ordinary vehicle. They are precisely similar in construction, except that the former has the outward appearance of a landau, its internal fittings are somewhat more elaborate, and the charge made for the use of it is more than the 10 marks (shillings) which have to be paid for the ordinary vehicle in Berlin and the neighbouring districts. The cost of construction of these ambulances is 1750 marks (£87 10*s*) for the ordinary kind and 3200 marks (£160) for the saloon class.

The Disinfecting Yard at the Central Depôt.

The disinfection of these ambulances is carried out in

such a way as to render it impossible for a patient travelling in one of them to contract any illness from a former occupant of the carriage. The disinfection, except in the case of small-pox, cholera, yellow fever, leprosy, petechial fever (*Flecktfieber*), and plague, takes place in the society's special disinfecting establishments. In the case of the above-mentioned diseases the disinfection has to take place under special regulations laid down by the police. At the outset the society had to decide what preparation was to be used for disinfecting the ambulances. Disinfectants which leave an odour were impracticable so carbolic acid could not be used nor anything such as chloride of lime which would injure the internal fittings. Any lengthy process such as disinfection with vaporised formalin was unsuitable because the ambulances had to be disinfected after each journey and it was important to spend as little time as possible over the matter. The process finally adopted was the result of painstaking experiments by Professor Proskauer of the Royal Institute for Infectious Diseases. Every disinfection depôt contains: (1) the so-called infected room; (2) the clean room; (3) the living room; and (4) the bathroom. The disinfecting apparatus is placed in the wall between the infected and clean rooms and is therefore half in the infected and half in the clean room. The infected room contains: (1) the steam disinfecting apparatus; (2) apparatus for disinfecting linen; (3) a Koerting disinfecting syringe; (4) a linen basket; (5) a hot-water receptacle; and (6) washing appliances for attendants.

Of the two disinfectors mentioned above, one is employed in the infected and one in the clean room. The disinfection is performed as follows. As soon as the ambulance has been backed into the infected room the litter and bedstead are taken out and the canvas cover is removed from the litter. The canvas cover, together with all wraps, coverings, and linen, is then placed in the linen basket (*Wäschesammler*), whence, after the ambulance has been disinfected, they are taken to the disinfection apparatus. The disinfector, in his special working dress, after everything has been removed from the interior of the ambulance, plays on the interior with a hose charged with a solution of potash soap (i.e., soft soap) at a temperature of 70° C. This is continued for five minutes, the bedstead and litter also being thoroughly sprayed. Then every part of the ambulance is well rubbed down with a scrubber, afterwards sprayed again with clean water, and finally rubbed dry with woollen cloths. The whole operation only takes 20 minutes. The ambulance is provided with clean coverings, linen, wraps, and canvas cover for the litter and within half an hour of its arrival it is again ready for use. The linen is disinfected in the steam disinfecting apparatus, any stains are removed by washing with soap solution, and, finally, the disinfectors themselves are disinfected before leaving the depôts, which it may be here said are open day and night. On an average 40 cases are attended a day by ambulances from each depôt. Now that the new ambulance system has received, so to speak, the stamp of official sanction, for the police have authorised its vehicles being used to carry out the removal of sick paupers, it is to be hoped that the First Aid Society's endeavours will be more widely imitated.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

University of Liverpool: the New Zoological Museum and Laboratories.

THE new museum and laboratories of zoology were opened on Nov. 18th by the Earl of Onslow, G.C.M.G. (formerly President of the Board of Agriculture and Fisheries). Prior to the formal opening ceremony a meeting was held in the Arts Theatre of the University in the presence of a numerous and representative assemblage, including, besides Lord Onslow, the Earl of Derby, K.G., Sir Edward Lawrence (pro-Chancellor), Mr. E. K. Muspratt (pro-Chancellor), Vice-Chancellor A. W. W. Dale, Sir Thomas Elliott (permanent secretary of the Board of Agriculture and Fisheries), Sir John Murray, the Right Hon. R. B. Haldane, K.C., M.P., Sir Lauder Brunton, Sir John Brunner, Bart., M.P., and Lord Mountmorres. The chair was occupied by the Earl of Derby, the Chancellor of the University. Apologies and letters of regret for unavoidable absence were received from the President of the Royal Society, Sir Archibald Geikie, Professor Ray Lankester, Sir Henry Roscoe, and many other scientific men. A resolution passed at the meeting of the Linnæan Society of London, signed by the officers and congratulating the University of Liverpool and its President (Professor Herdman) on the new laboratories, was also received. Dr. Nansen had accepted the invitation and hoped to be present but at the last moment sent his regrets and a telegram saying, "Hearty congratulations to the zoological department of the University of Liverpool." The Earl of Derby, in his introductory remarks, said that was a moment of congratulation to all who, like the governing body, believed in the future of the University. They met once more to signalise another mark gained and another step advanced in the duties which they had laid before them. They cordially welcomed Lord Onslow who had done much in the service of the country in encouraging research, in promoting the fisheries brought under his department, and in giving the benefit of his official knowledge and experience to those with whom he acted and whose privilege it was to act with him. They were proud to have associated with them a gentleman whose name was known wherever marine biology was spoken of—namely, Sir John Murray, the able adviser and chronicler of the results of the great *Challenger* expedition. They had also with them in their own immediate circle Professor Herdman, to whom the privilege had been accorded of linking science and practice. Lord Onslow, in the course of his address, congratulated the University on the decision to set apart a sum sufficient to equip properly a museum and laboratories for the department of zoology and natural history. Whilst admitting that in Liverpool, at any rate, the application of science to commerce was properly appreciated he said that in England generally he was afraid it must be confessed that the amount which had been devoted to the promotion of university education paled its ineffectual fires before what had been done in America. Passing on to the benefits conferred by science upon commerce he said that the great blessing which the people of this country enjoyed—namely, the cheapness of food—was much more largely due to the inventions of science than to any fiscal relations which we could possibly establish with other countries. Speaking of recent developments in education Lord Onslow said that he was afraid that in these days of strenuous competition they would not get Parliament or the Government to listen to any requirements unless they were put before them by the whole force of public opinion. He welcomed the good understanding arrived at between the University and the Lancashire sea fisheries committee and said that the problem to be solved by scientific research was whether anything could be done to stem the depopulation of the ocean, if that depopulation was actually going on. This work must be divided under two heads—statistical and biological. Sir Thomas Elliott also made a few complimentary remarks on the public spirit shown in Liverpool and said that he wished, on behalf of the Board of Agriculture and Fisheries, to associate himself with all those expressions of goodwill which had fallen from Lord Onslow. They were very grateful to Professor Herdman for the services which he had rendered. He wished the new department every success and stated that the Board was pleased to award £200 to the University for the financial year ending March, 1906. Other speakers followed. The company afterwards adjourned to the new buildings in Brownlow-street which Lord Onslow formally opened. Subsequently in the lecture theatre Sir John Murray addressed the assembly upon Oceanography. The new building of the zoological department has a frontage of 123 feet on the western side of Brownlow-street, is 41 feet from front to back, and 84 feet in height from the street level. It is built of red pressed brick relieved with white sandstone from the Storeton quarries. On the north side it adjoins the Hartley botanical laboratory and on the south side the new electro-technics department, which also extends underneath the zoological building in the basement. The building consists of a central tower, containing the entrance hall and staircase and some of the smaller rooms on each floor, and of two blocks. In the south block the three floors accommodate (1) the museum with its gallery, (2) the lecture theatre, and (3) the large junior laboratory at the top of the building. In the north block, on the two lower floors there are extensions of the museum to receive special collections, and the rest of the space is devoted to the senior classroom, senior and honours

students' laboratories, the departmental library, and a large laboratory and storeroom accommodation for the sea fisheries department, the work of the economic entomologist, of the marine biological committee, and other practical applications of zoology. In the central tower, together with the staircase, there are small rooms for the professor and two demonstrators, the laboratory assistant, with diagram, chemical, aquarium, photographic, and macerating rooms, and students' lavatories. The library is in three parts: (1) The departmental library, the central meeting room of the department for senior students and the staff, and the room in which the Biological Society and other bodies meeting in the department can assemble before entering the lecture hall; (2) the "Isaac Thompson" library, a special collection of books on marine biology, placed here as a memorial of Mr. Isaac Cooke Thompson, F.L.S., for many years honorary treasurer of the Liverpool Marine Biology Committee; and (3) the library of the Liverpool Biological Society. The fisheries department, the research rooms, the lecture theatre, and students' laboratories are admirably situated and well equipped and the whole department gives every promise of a large sphere of usefulness. The cost of the building was £18,000.

Congratulatory Address to Sir James Barr; Honours for Professor C. S. Sherrington.

An interesting little gathering took place at the Royal Infirmary on Nov. 14th, when the students presented Dr. James Barr (the senior physician) with an address of congratulation upon the knighthood which is about to be conferred upon him. The large lecture theatre was filled by professors of the University, members of the staff, and students past and present, and great enthusiasm prevailed. The presentation was made by Dr. P. Hick, the senior house surgeon, in a few well-chosen words which were endorsed by members of the staff and students. Lady Barr was also present and received an ovation.—Professor C. S. Sherrington has been elected a member of the Royal Academy of Lynxes, the ancient and famous Roman Academy, in the room of the late Professor Marey. He has also been appointed a corresponding member of the Belgian Royal Academy of Medicine, in addition to which he was recently awarded by the Royal Society the medal for biology.

Nov. 21st.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Professor Osler at Cardiff.

AN address was delivered on Nov. 14th before the Cardiff Medical Society by Professor William Osler. The audience included not only the members of the society and medical men from the surrounding districts but also students from University College, Cardiff, and many others who are interested in the work of the University of Wales. After describing in some detail the organisation of the Johns Hopkins Medical School in Baltimore, U.S.A., Professor Osler urged that if a university was to gain a world-wide reputation the teachers must be selected for their enthusiasm and for their research work. Unfortunately, a man who could carry out a good piece of research was not always a good teacher but it was often a good thing to pay a man well merely to do the thinking. Many of the best minds were being killed, he said, by the incessant drudgery of teaching and the way to obviate that was to have well-paid teachers and to supply them with plenty of well-paid assistants. In the evening Professor Osler was entertained to dinner by the Medical Society, nearly 100 members and their friends being present.

The Purification of Water by Cupric Sulphate.

At the meeting of the West of England and South Wales branch of the Incorporated Society of Medical Officers of Health held at Newport (Mon.) on Nov. 16th Dr. J. Howard-Jones described the action which he had recently taken to rid the water in the Newport reservoirs of an objectionable fishy smell which had been given off in the previous years during the months of April, May, and June. The smell was most marked in those mains which had a sluggish flow or where there was no terminal circulation and it had been reduced to some extent by liberal flushing. In the middle of May last a reservoir containing 81,000,000 gallons of water was selected for treatment with cupric sulphate after the manner which has been recommended by the agricultural department of the United States of America. Seven hundredweights of the sulphate was divided into portions of 28 pounds each and each portion was placed in a canvas bag. The bags were placed five at a time upon a large raft which was towed over the surface of the reservoir. The motion of the raft caused the crystals to dissolve fairly rapidly and the deep bluish-white solution and precipitate which were produced quickly sank and were diffused laterally to a considerable extent. Within half an hour of the treatment a large quantity of small white flocculi was observed in the water. These gradually sank. Within 24 hours there was a marked improvement in the water and in a few days it was brilliantly clear and free from smell. Frequent examinations were made by the public analyst and in less than a week the water was again delivered to the public free from any appreciable traces of copper. Two other reservoirs were successfully treated in the same manner.

Medical Examination of Poor-law Officers.

The Bristol board of guardians has decided that in future all candidates for offices under the board shall be medically examined by the workhouse medical officers who shall be paid 3*s.* 6*d.* for each examination.

A Water Board for Glamorgan.

A conference of representatives from the Glamorgan county council and the sanitary authorities within the administrative county was held at Neath on Nov. 8th for the purpose of considering what steps could be taken to preserve the large water-bearing areas within the county for the use of the inhabitants of the county. The desire of the county council is apparently to be constituted a water board and it was suggested that a Bill should be laid before Parliament for that purpose. It was pointed out that all the larger districts had already provided themselves, or had secured powers to provide themselves, with a sufficient water-supply and that it was hardly fair that they should have to bear a share in the administration of a water board which would deal only with the smaller districts. These larger districts include the Rhondda, Pontypridd, and Aberdare, with an aggregate population of nearly 250,000 persons, a number, now that Merthyr is incorporated, which is about half that of the entire administrative county. The practical outcome of the conference was a resolution approving of the principle of the county council discharging the functions of a water board.

University College, Bristol.

The annual meeting of the governors of University College, Bristol, was held on Nov. 15th, when it was reported that the present position of the College was satisfactory, while the prospects were brighter than they ever had been. The following were elected representative members of the council for the ensuing three years: Mr. Thomas Bryant (elected by the Royal College of Surgeons of England); Sir W. Selby Church, Bart. (elected by the Royal College of Physicians of London); and Mr. J. Paul Bush, C.M.G. (elected by the Faculty of Medicine of University College, Bristol). Dr. E. Markham Skerritt was elected an emeritus professor in acknowledgment of his long services to the College.

Nov. 22nd.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

The University of Edinburgh.

I HAVE already mentioned that a poll was being conducted for the election of two assessors to the University court. The candidates were Mr. J. Campbell Lorimer, K.C.; Dr. D. F. Lowe, headmaster of George Heriot's School; and Dr. J. A. Trail, W.S. The result of the poll is that the two first mentioned gentleman have been elected. Over 3000 members of the General Council voted. The number of votes given to each was as follows: Dr. Lowe, 2297; Mr. Campbell Lorimer, 2031; and Dr. Trail, 1734.—The engineering department of the University has moved into new quarters. This fact is of medical interest because of the historical associations of the buildings occupied. Until recently the buildings formed part of the City Hospital for Infectious Diseases. When the new City

Hospital at Colinton was opened the old buildings and ground attached were sold to the University. The medical associations, however, go further back than this. The building formed the surgical side of the old Royal Infirmary in which Syme and Lister taught and operated. Before their time the buildings constituted the old high school of Edinburgh. The first high school buildings were erected on this site in 1578 on ground which had belonged to the Blackfriars Monastery. The original school was replaced by a new building about the year 1779 and it was this later building that became the surgical hospital about the year 1829. The walls of the building have been retained but internally it has been gutted and converted into the engineering department of the University, which is said to be equal in equipment to any in the kingdom. The Carnegie bequest made this necessary development possible. New buildings are being erected on the adjoining ground in which the department of physics will shortly be housed.

Bazaar for the Royal Victoria Hospital for Consumption, Edinburgh.

A great international fair is to be held this week in the Waverley Market, Edinburgh, to raise funds for the endowment of this hospital. It is to be opened on Wednesday and is to last for four days. The sum aimed at is £15,000 and, judging from the widespread interest taken in the scheme, there seems every prospect that this sum will be reached and even exceeded.

Glasgow Royal Infirmary and Clinical Teaching.

The question of the relationship of the Glasgow Royal Infirmary and St. Mungo's College has been for some time engaging the attention of the managers of the infirmary and the governors of the College. On account of a variety of circumstances there has been in recent years a serious decrease in the attendance at the College and as this materially affects the working of the infirmary the governors approached the managers with a request that they would consider their position. A joint committee of both boards was subseqnently appointed for this purpose and two statements have been prepared—one by Dr. D. C. McVail who represents St. Mungo's College on the committee of management, and the other by Professor John Glaister of the University of Glasgow. Dr. McVail begins his statement by showing that it has long been recognised that a clinical school is an essential part of a great hospital. Almost without exception the advances which were made in medicine and surgery during the last century were made in connexion with the great teaching hospitals. The Royal Infirmary, which has been a clinical school since its foundation in 1791, has had a share not less important than that of any similar institution in Europe or America in those advances. But not only is the existence of a clinical school important in the interest of medicine and surgery, it forms a necessary part in the equipment of a hospital. The danger of not having any students in their wards on the removal of the University to Gilmorehill and the erection of the Western Infirmary led the managers of the Royal Infirmary to open in 1876 the medical school subsequently erected into St. Mungo's College. Since 1889 the managers had had only an indirect concern in the affairs of the College. Until that date they paid from the infirmary funds the expenses of the medical school, amounting to about £400 a year. The governors of the College had then obtained from the Bellahouston trustees two grants each of £2500 which were attached to the chair of anatomy. From other sources the chair of physiology was endowed to the extent of £1250 and the lectureship in mental diseases to the extent of £1000. No other chair or lectureship had any endowment, but donations amounting to some thousands of pounds were given towards the needs of the College. Owing to the decline in the number of students this fund had been seriously encroached upon, and the Bellahouston trustees had agreed to give the further sum of £300 a year for a limited number of years and some private friends of the College were for five years annually contributing £200 towards the College expenses. Dr. McVail next refers to the steady decline in the number of extra-mural students consequent on the erection of schools in England and the withdrawal of the power from St. Andrews to confer degrees on non-resident students. Following on this came the Carnegie bequest to the Scottish Universities. Prior to this benefaction the decline in attendance at St. Mungo's College was gradual; since then the descent has been so rapid that annihilation is imminent. The Royal Infirmary managers have begun the work of erecting a great modern hospital and they must now decide whether the new infirmary, like the old, is to be the seat of a clinical school and to continue its work in the advancement of medicine and surgery, or to confine itself to the work of treating the sick and injured as is done in the hospitals of the smaller towns where no universities or medical schools exist. Dr. McVail then goes on to submit four questions for the consideration and guidance of the managers as follows: Question 1. Could students attending all their systematic courses at the University buildings at Gilmorehill be induced in sufficient numbers to take their clinical work at the Royal Infirmary in the absence of any systematic school in connexion with the infirmary? The answer which he gives is that the Royal Infirmary wards have always been open to the students of the University without exacting attendance at any of the systematic classes in St. Mungo's College, and the experience of the past 29 years is that the students do not come. Question 2. Could students of the University be induced in sufficient numbers to attend at the Royal Infirmary in their fourth and fifth years if systematic classes were established in St. Mungo's College corresponding to the systematic classes of these years at Gilmorehill? The answer to this question is in the negative also and for two reasons. In the first place during his first three years the student has formed attachments and friendships in Gilmorehill and unless absolutely compelled is not likely to leave his familiar surroundings of his own free will. In the second place the professors in the final years, being those who are engaged in consulting practice, are not likely to assist in depriving themselves of the advantage of becoming influentially acquainted with students who in a few years will be in practice and who will call in as consultants the medical and surgical teachers under whom they have studied. Replying to the next query Dr. McVail says that the only solution of the difficulty is the provision of a complete systematic clinical school in connexion with the infirmary where the students would have entire university status and privilege. That the requisite number of students are not to be got for St. Mungo's College is wholly due to the fact that the Royal Infirmary School is not of university rank. Until the students of St. Mungo's College are able to graduate in terms similar to those which apply to the students at Gilmorehill further progress is impossible and still further decline is inevitable. Placed at such a distance from the seat of the University of Glasgow as the Royal Infirmary is, there is no alternative to obtaining degree-giving facilities but the extinction of the school. This means affiliation with the University under the Universities Act of 1889. To obtain this, application requires to be made to the Privy Council, with which it lies to decide whether a College is to be declared a College within the meaning of the Act. But prior to approaching the Privy Council sufficient endowment of chairs in the medical faculty must be provided and for this purpose a capital of £80,000, yielding £2700 a year, would be required. It is suggested that if the classes were thrown open to women students and some change were made in the name and constitution of the College the Muirhead College Trust might devote a large share or even the whole of its fund, which is now over £40,000, towards the endowment of a combined school of medicine for men and women. Assuming that the Privy Council declared the College to be a College within the meaning of the Universities Act, the next step would be to approach the University Court of Glasgow for affiliation. It may safely be assumed that the University Court would consider the application in a broad and liberal manner and would not be so much influenced by any temporary difficulties that affiliation might cause, as by the effect which affiliation would have in affording far greater facilities for the teaching of medicine in Glasgow and thus enhancing the value and raising the prestige of the Glasgow Medical School by enlarging for students the field for clinical study. Professor Glaister's scheme proceeds on very similar lines to those suggested by Dr. McVail. The first step is to get the various chairs at St. Mungo's College endowed and then to obtain affiliation with the University. Assuming that the University would favour affiliation the lecturers at St. Mungo's College would then become joint examiners with the professors at the University in their various subjects. Many difficulties would be solved if the hour of visiting at the Royal Infirmary were changed

from 9 o'clock, which is the hour at the Western Infirmary, to 1.30 P.M., and if the hours for the various lectures were suitably arranged.

The Cripple Children's League.

An appeal has been issued by the secretary of the Cripple Children's League for £800 to carry on the winter's work. In the work of this association the word "cripple" is used to denote all children who are physically infirm and whose ailments include spinal curvature, hip joint disease, paralysis, rickets, amputations, epilepsy, &c. At present there are 1327 of these cases under the care of the league and of these 987 are under, and 340 are over, 14 years of age, but of those over 14 years of age many are physically like children aged eight or nine years. For the help of these children there are: (*a*) Special day schools and to these (four in number) the cripples are conveyed in ambulance wagons under the care of trained nurses who remain with them all day and after school is over take them to their homes. (*b*) Parlours, social and industrial. These parlours (22 in number) provide the cripples with a happy evening once a fortnight and here the older children are taught basket-making, wood-carving, sewing, knitting, and so on. (*c*) Visitation. There are 950 visitors who keep in touch with individual cripples. (*d*) Hospital and fresh air treatment. The Prestwick and Maybole Homes conducted under the auspices of the league have been crowded this season with little sufferers. It will be seen from the above that the league deserves hearty support and it is to be hoped that the £800 will be forthcoming.

Aberdeen University Medical Society.

At a meeting held on Nov. 17th, Mr. M'Kerrow being in the chair, Mr. M'Queen read an eloquent paper on Heredity, which he defined as the link which bound us to our ancestors. The physical basis of heredity was fully discussed and Weismann's theory of the continuity of germ plasm was described in detail, and it was further shown how this theory explained the three forms of inheritance—blended, exclusive, and particulate. Any disease inherited must be a variation and not an acquired characteristic. Such diseases were instanced as hereditary ataxia and hæmophilia. Mr. M'Queen stated, however, that many poisons circulating in the system might affect the germ cells of the parent and so modify the offspring, causing either death in utero or premature decay of the faculties after birth. In conclusion, he stated that disease tended to strengthen a race by weeding out the weaker members and that the only hindrance to its beneficent work was the pernicious interference of the medical man.—Mr. Thomson followed with a paper on Genito-urinary Tuberculosis. He emphasised the importance of an early diagnosis of tubercle in the kidney. Transient attacks of hæmaturia and of frequency of micturition might occur for years before the disease was recognised and should excite suspicion. Important points in the diagnosis are that pus appears in the urine and signs of vesical irritation show themselves. The only satisfactory treatment was nephrectomy and if not done early a cure could hardly be looked for. The symptoms of tubercle in the bladder were pain and occasional passage of blood with signs of cystitis, the prognosis being very bad. Suprapubic drainage might be tried. In the testicle and prostate Mr. Thomson said that the tendency was to conservative treatment, excision of the disease foci only being practised. The meeting concluded with a vote of thanks to Mr. M'Queen and Mr. Thomson for their interesting papers.

Nov. 21st.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Disgraceful Behaviour of Students at a Recent Meeting of the Royal University.

WITH reference to the rowdy and disloyal conduct of the students of the Royal University at a recent meeting, the following letter, signed by 275 female graduates, has been forwarded to the Senate:—

TO THE SENATE OF THE ROYAL UNIVERSITY OF IRELAND.

We, the undersigned women graduates of the Royal University of Ireland, feel constrained to express publicly our entire disapproval of the behaviour of the undergraduates and others, and of the demonstration against the playing of the National Anthem at the conferring of degrees on Oct. 27th.

At a general meeting of the students of the Queen's College, Galway, held on Nov. 11th, a strong motion was carried disapproving of "the discreditable action of certain graduates and undergraduates in preventing the playing of God Save the King at the recent meeting of the Royal University." After a long discussion it was decided that a memorial in favour of the sentiments of the resolution should be forwarded to the Senate.

Serious Outbreak of Enteric Fever in Tyrone.

Recent proceedings of the Omagh board of guardians disclosed an alarming epidemic of enteric fever in a wide district called Greencastle. Dr. C. J. Clibborn, Local Government Board inspector, was present and said that when he was sent down from Dublin he found 25 patients suffering from enteric fever. He is reported to have stated that the disease was due to separated milk and that in the area of the county where this milk was not used the disease did not prevail. Moreover, people in the affected area who did not use this milk were not affected. It was decided that another medical officer should be sent to assist the local medical officer, Mr. Bradley, and that a second fever ambulance should be equipped and a disinfecting apparatus obtained.

Ulster Medical Society: Reception by the President.

The President of the Ulster Medical Society (Dr. W. Calwell) and Mrs. Calwell gave a pleasant "at home" in the Medical Institute, Belfast, on the evening of Nov. 16th, to the Fellows, members, and their wives, and to some outside friends. The main hall was used as a concert room where there was an excellent programme of vocal and instrumental music and recitations, while refreshments were served below in the library. There was a very large attendance and a most enjoyable evening was spent. During the course of the proceedings Sir Otto Jaffe, who last year had promised the society a portrait of Jenner, presented one of that distinguished man of science. It is a copy of Northcote's portrait, the original of which is in the National Gallery. In the absence of Lady Jaffe, her sister (Mrs. Joel) unveiled the picture, when a vote of thanks, proposed by Sir William Whitla and seconded by Dr. J. Campbell, was warmly accorded to Sir Otto Jaffe.

Nov. 21st.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Improvements in the Technique of Injections of Soluble Mercury Salts.

AT the meeting of the Therapeutical Society held on Nov. 8th M. Danlos brought forward the following pharmaceutical improvement. As is well known, the principal objection to the administration of soluble mercurial salts is the pain which they cause. M. Midy, said M. Danlos, set himself to find out some way of abolishing this pain and has succeeded almost perfectly by using the following formula. It is based upon the use of an analgesic compatible with the alkaline double iodides of mercury. (Subcutine, the analgesic, is a combination of an aromatic amine, anæsthesine, with paraphenol-sulphonic acid.) Biniodide of mercury, one centigramme; iodide of sodium, one centigramme; subcutine, five centigrammes; chloride of sodium, two centigrammes; and sterile ozonised water, one centigramme. This fluid for injection is preserved in bulb tubes of from one cubic centimetre to two cubic centimetres capacity. Of it 420 injections were administered by three dressers of M. Danlos and all three came to the following conclusions. A small number of patients felt absolutely no pain or discomfort of any kind. In general, however, insensibility began immediately in the vicinity of the site of the injection and spread rapidly over the thigh and the calf. This insensibility, which in no way prevented the patient from going about his employment, lasted in men from 20 minutes to half an hour and in women from two to three hours. In some few patients who were particularly nervous there was real pain but the injections were never accompanied by swelling or abscess. Control injections undertaken with the permission of the patients were given with ordinary solutions of the double iodide and pain was always felt. These facts show that the new formula offers great advantages over those in use hitherto. The fluid should be injected into the muscles. Sometimes the bulb tubes containing the fluid show tufts of crystals which have deposited. If the tube be warmed in boiling water these crystals as a rule

re-dissolve and the liquid thus become clear may be used for injection. Occasionally, however, the crystals re-dissolve but collect as an oily globule which floats in the fluid. A tube showing this reaction must be rejected. Crystallisation and especially the globular mass do not appear except when impure subcutine melting at 140° C., or even 102° C., has been used. Great care should therefore be taken to see that this substance is obtained pure.

Bureau des Renseignements.

On Nov. 7th M. Debove laid before the Academy of Medicine a report by Dr. Blondel upon the working for 1904 of the Bureau des Renseignements at the Sorbonne. The report showed that over 8000 persons had sought information at the Bureau during the year in question and that the services which it rendered were very great. A similar institution has been organised in Berlin.

Poison in Eggs

At the meeting of the Academy of Sciences held on Nov. 6th M. Gustave Loisel related some experiments which he had made concerning the poisonous action of yelk of egg. The yelks of the eggs of hens, ducks, and tortoises contain a substance which when injected into the veins, under the skin, or into the general body cavity causes death sooner or later from an acute intoxication of the central nervous system. If the yelk of a duck's egg be dried, powdered, and then treated with saline solution so as to make a 1 per cent. solution, and this fluid is injected into the veins of a rabbit, the rabbit will die if the dose be from seven to eight grammes per kilogramme of body weight. From 20 to 30 grammes per kilogramme are, however, required if the injection be made into the cœlom. Hen's egg yelk is less toxic than that of the duck, but that of the tortoise is more poisonous than either, for in this case from five to six grammes per kilogramme will kill a rabbit even when injected into the cœlom. Egg albumin is equally toxic, at least, in the case of the tortoise which is the only egg albumin with which M. Loisel has experimented so far.

General Paralysis among Arabs.

At the meeting of the Academy of Medicine held on Nov. 7th M. Marie read a paper upon General Paralysis among Arabs, founded on observations at the Abassieh Hospital in Egypt. Contrary to the common opinion that general paralysis is rare among Oriental races, it is comparatively common in the Abassieh Hospital, where the annual average is 50 cases, the number of beds being 600. According to Dr. Warnack, the medical officer in charge of the hospital, syphilis is found as an antecedent of general paralysis six times more frequently than in the case of other mental disturbance. M. Marie concluded by saying that these facts did not militate against the facts observed in other districts but he had to content himself with them as regarded the Arab race, for there were no special mental hospitals in either Algeria or Tunisia.

Spontaneous Restoration of Bone removed in Craniectomy.

At a meeting of the Medical Society of Paris held on Oct. 28th M. Barbaux described an unusual occurrence which he and M. Marie had jointly investigated. The patient was a male idiot who had been under their observation for a long time and on whom craniectomy had been performed at the age of 11 years. He died from tuberculous enteritis ten years afterwards and at the necropsy it was found that spontaneous restoration (*réfection*) of the resected portion of bone had taken place and was almost complete. There might have been some improvement in the patient's mental condition, but not for more than a very brief period and his dementia appeared to have been re-established long before the restoration of the bone. The new formation seemed to have proceeded in the same manner as the normal ossification of the skull, for a sort of fontanelle was gradually occupied by bony spicules arising from the normal temporal and frontal points of ossification of the parietal bone and converging towards the sutures. These bony spicules formed in the interosseous membrane a pattern like that of the *feuille de figuier* (the French name for the internal grooving of the parietal bone). M. Barbaux and M. Marie drew particular attention to the circumstance that the restoration of the bone was almost complete, although some very competent authorities had maintained that the periosteum of the cranial bones had no osteogenic properties and that spontaneous restoration of these bones was impossible. In the opinion of M. Barbaux and M. Marie this case, while showing the inutility of surgical interference in certain forms of idiocy, proved that the periosteum of the cranial bones possessed osteogenic properties when it was left intact after an operation performed with aseptic precautions before the period of adult life.

A Certificate for Chauffeurs in France.

The Minister of the Interior, acting together with the Minister of Public Works, recently nominated an interministerial commission to furnish him with precise information regarding certain improvements which are needed in the laws laid down for the regulations dealing with motor-cars. This commission has just issued its report, including certain proposals for new regulations, and the report is to be laid before the Conseil d'Etat. I send you the portion dealing with matters of medical interest. The report recommends that every chauffeur should henceforward be obliged to have a medical certificate. As things are at present certain chauffeurs are by no means in sound health, whilst some are overworked (*surmenés*), and in one case an epileptic was in charge of a motor-car. A medical man will in future have to certify that the candidate for the post of chauffeur is sound in mind and body.

Nov. 21st.

BERLIN.

(FROM OUR OWN CORRESPONDENT.)

Russian Students in Germany.

THE troubles in Russia have not been without an effect on the German universities, but not in the direction of political agitation, for the German students are so far from following the revolutionary example of their Russian comrades that they exhibit less hostility to their Government than the students of any other continental nation. The Russian revolution, however, by excluding students from the Russian universities, has caused a great number of them to emigrate to the German universities. In ordinary times Russian students are regular visitors to the German universities, although they have never been very much liked by the native students, but the present overcrowding by Russians has induced the students of the University of Jena, where that intrusion is especially resented, to petition the academical authorities to take effective measures against the newcomers. The petitioners ask that Russian students should henceforth all matriculate only under the same conditions as German students. Hitherto foreigners could matriculate in German universities when they were entitled to matriculation at a university of their own country, so that whilst a German could become a student only after having passed the rather difficult Abiturienten-examen, other foreigners, Russians included, could matriculate at once on proving that they had passed the sometimes very easy examinations required in their own countries. The petitioners further request that foreign students should only be allowed to matriculate and secure places in the lecture room and laboratories a fortnight after the opening of the session. The reason for that restriction is that the German students, as a rule, spend their vacations at home, whereas the Russian students often stay during the vacations at the University, so that they are the first to secure seats and therefore get better ones than the later arriving Germans. This is a great grievance in laboratories, clinics, and other institutions where the number of places is limited. To deter foreigners, and especially Russians, from entering the University the petitioners further propose that they should be made to pay much higher fees than the natives and that they should undergo an examination in the German language to show whether they are really able to follow the lectures and courses of instruction. Finally, it is asked that associations of foreign students should not enjoy the privileges of the German students' associations. This petition, which has been published by some of the newspapers, is far from meeting with general approval. In former times of political troubles in Germany many German students and graduates found it expedient to leave home and to seek an asylum abroad and it is therefore neither generous nor wise to place obstacles in the way of those unfortunate foreigners who by the political convulsions of their country have been compelled to emigrate. Moreover, it is the interest of Germany that German scientific methods and ideas should be spread to other countries by foreign

students who have received their training in this country. The academical authorities are thus not inclined to comply with the demands of the petitioners. To avoid mistakes it must be mentioned that the hostility of the German students is only directed against the Russians, and that foreigners of other nationalities have always been met with courtesy.

Nov. 20th.

CANADA.

(FROM OUR OWN CORRESPONDENT.)

St. Boniface Hospital, Winnipeg.

A NEW staff has recently been organised in connexion with St. Boniface Hospital, Winnipeg, Manitoba, the leading Roman Catholic institution of that description in Winnipeg. Heretofore this hospital has been an open institution. The Hon. Dr. O'Donnell has been elected President of the staff and Dr. J. McKenty, secretary. The following constitute the staff:—Consulting physicians: Dr. O'Donnell, Dr. J. R. Jones, and Dr. W. Rogers. Consulting surgeons: Dr. England, Dr. McArthur, and Dr. R. McKenzie. Attending physicians: Dr. Lambert, Dr. Nichols, Dr. C. McKenzie, and Dr. Pantman. Attending surgeons: Dr. Todd, Dr. McKenty, and Dr. Lehman. Attending physicians, children's wards: Dr. Davidson, Dr. Dubuc, and Dr. Slater. Isolated hospital for infectious diseases: Dr. Devins, Dr. Halpenny, Dr. Gardner, Dr. Teney, and Dr. Howden. Oculist: Dr. Good. Pathologists: Dr. Gordon Bell, Dr. McLean, and Dr. Turnbull.

Winnipeg Medical Association.

The annual meeting of the Winnipeg Medical Association was held in the Medical Library of that city on Oct. 6th. The following officers were elected for 1905–06:—President: Dr. Gordon Bell. First Vice-President: Dr. E. W. Montgomery. Second Vice-President: Dr. J. R. Davidson. Honorary secretary-treasurer: Dr. Charles Woollard. Executive committee: Dr. Mary Crawford, Dr. Hugh McKay, Dr. A. D. Carscallen, and Dr. J. N. McLean. An archives committee was appointed to collect and preserve the records of the association and the papers read before it, the members of this committee being Dr. Beath, Dr. Vrooman, and Dr. Woollard. The membership of this association is now 97.

Typhoid Fever in Winnipeg.

There were more than 600 cases of typhoid fever in Winnipeg during August, September, and October, and the epidemic has nearly approached to that of one year ago. So great has been the general alarm of the citizens that the Premier of the Province of Manitoba requested the chairman of the provincial board of health to make an investigation in order, if possible, to ascertain the cause of the repeated outbreak. Dr. R. M. Simpson, the chairman of the board of health, made a special examination of the fever districts and between August 1st and Oct. 16th he found that there had been actually 596 cases of the disease in that city, or an average of 242 cases per month. He indicts the sanitary system of the city severely; advocates the abolition of the box-closet system, there being 8000 of these in use in the city; calls for a visible water-supply, the city being supplied with drinking water from artesian wells; and emphatically gives it as his opinion that there must be a board of health and a health officer for the city totally independent of all aldermanic influence and control. He also suggests that the city should take over the installing of sanitary systems in all houses. He characterises the sewerage system of Winnipeg as a public nuisance and one which should no longer be tolerated.

Winnipeg General Hospital.

On the advice of its finance committee the city council of Winnipeg has decided to submit to the ratepayers of that city at an early date a by-law concerning the raising of a fund of $150,000 for improvements and additions to the General Hospital of that city. Owing to the tremendous tide of immigration into Winnipeg and Western Canada generally great are the demands upon the Winnipeg General Hospital, so great, indeed, that for months past there has not been practically a vacant bed in the institution. The cost of maintenance now averages over $10,000 per month. The work that the hospital is doing may be seen in the report for the week ending Oct. 14th. During that week there were 379 patients in the hospital, 262 being men, 76 women, and 41 children. In the out-door departments 103 patients were treated. Should the money be raised by this by-law a new nurses' residence will be erected and the large portion of the main building now occupied by the nurses will be converted into public wards, of which the hospital feels keenly the need.

Toronto General Hospital.

A conference is to be held at an early date between the board of trustees of the Toronto General Hospital, representatives of the University of Toronto, and the Government of the Province of Ontario in connexion with the proposed new general hospital for Toronto, the erection of which will soon be commenced. The present board of trustees of the hospital consists of five members, three appointed by the Ontario Government, one elected by the subscribers, and one, the mayor, to represent the citizens of Toronto. This board has expressed its willingness to resign so that a new and larger board may be appointed to carry on the work of the new institution. The most recent donations to the new hospital have brought the amount now in hand to approximately $1,000,000, the two largest contributions lately received being one from the Hon. Senator George A. Cox, and the other from the trustees of the estate of the late Hart A. Massey of Toronto.—The graduating exercises of the Training School for Nurses in connexion with this hospital were held a short time ago, when 15 nurses received their diplomas. Miss Snively, the superintendent of the training school, in making her annual report, stated that there were now in the institution 88 nurses, three of these being probationers, 78 undergraduates, and seven post-graduates. Dr. John N. Elliott Brown, formerly secretary to the Gold Territory at Dawson, is the new medical superintendent of this hospital in succession to Dr. Charles O'Reilly who held the appointment for nearly 30 years.

The Ontario Board of Health.

At the regular quarterly meeting of the Ontario board of health held in Toronto during the last week in October Dr. Charles A. Hodgetts, the secretary thereof, reported that small-pox still existed to some extent in the province, there being in Toronto alone ten cases. An effort will be made by the board to have a law placed on the statute books of the province similar to those in France and Germany, where the disease is practically stamped out, which will not only make vaccination compulsory but will also provide for secondary vaccination or revaccination before manhood or womanhood is reached. The question of the prevalence of typhoid fever throughout the province was also gone into, there having been reported 278 cases in September with 45 deaths. It was also reported that during September there had been 233 deaths from infectious diseases, 152 of which were from consumption. The board also took up the question of the regulation of mining and lumber camps in the unorganised districts of the province and it was decided to enforce the regulations to the letter, which provide that all of these camps must be supplied with a medical man during the winter months.

Meeting of the British Medical Association in Toronto in 1906.

Matters in connexion with the annual meeting of the British Medical Association in Toronto in 1906 are being got well in hand. Dr. R. A. Reeve, dean of the medical department of the University of Toronto, has been elected President, and the choice is an admirable and in every way a perfectly satisfactory one. It has been decided that the meeting shall take place on August 21st, 22nd, 23rd, and 24th. A strong committee of arrangements has been organised with Dr. Alexander McPhedran, professor of medicine in the University of Toronto and President of the Canadian Medical Association, as chairman. Dr. Adam H. Wright, senior editor of the *Canadian Practitioner and Review* and professor of obstetrics in the University, will be chairman of the printing and publishing committee. The annual meeting of the Canadian Medical Association will take place practically at the same time in the same city—viz., the afternoon of August 20th and the morning of the 21st. This will only be a business session and the most important item that will be taken up and considered will be the question of re-organisation. The medical profession of Toronto will leave no stone unturned to make this one of the most successful meetings in the history of the organisation. It is expected that there will be large numbers of the profession from all over Canada as well as from the United States.

Death of Dr. Frank Buller of Montreal.

Dr. Frank Buller, a very distinguished ophthalmic and aural surgeon, died at his residence in Montreal on Oct. 11th from anæmia after four months' sickness. The late Dr. Buller was born in the province of Ontario in 1844. He was graduated from Victoria College, then situated at Coburg, Ontario, in 1869 and at once proceeded to take a post-graduate course in England and Germany. Dr. Buller located in Montreal in 1876 and for 17 years he held the posts of ophthalmic and aural surgeon to the Montreal General Hospital, a position which he relinquished a few years ago to accept a similar one on the staff of the Royal Victoria Hospital. He was a member of the Canadian Medical Association, the British Medical Association, the Ophthalmological Society of America, and a life member of the Ophthalmological Society of the United Kingdom. Since 1883 he held the chair of ophthalmology and otology in the medical department of McGill University, Montreal.

The Montreal League for the Prevention of Tuberculosis.

The Montreal League for the Prevention of Tuberculosis is ever an active body. Recently arrangements have been made whereby a home for those in the pre-tuberculous stage may be cared for has been secured. This is situated about 50 miles from Montreal, at Ste. Agathe in the Laurentian mountains. It will be called the Brehner Rest, will be open for patients about May 15th, 1906, and will be under the charge of Dr. A. J. Richer of Montreal.

Nov. 7th.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Hospital Affairs.

THE annual report of the Women's Hospital, Melbourne, showed that the number of patients admitted to the midwifery department during the year was 1483, or seven less than in the previous year. The number of infants born in the institution was 1140. In the infirmary department the admissions numbered 471, as against 522, and the out-patients for the year aggregated 1116. The committee had under consideration the early erection of a new out-patients' department and nurses' quarters in place of the present inconvenient and obsolete buildings. The income on maintenance account for the year was £6411, as compared with £6057 for 1903-04, and the contributions for the year showed an increase of £186 over those of 1902-03. The Government grant had been increased by £300 and the grants from municipalities by £16 The expenditure on maintenance had decreased from £7332 for 1903-04 to £6925.—The statement of accounts of the committee of the Hospital Saturday and Sunday Fund of Melbourne showed that the total subscriptions to the fund in 1904 were on the Saturday £2466 and on the Sunday £5348, which, with the balance brought forward from 1903, made a total of £7866. The total expenditure was £313 and £7017 were distributed among the charities.—The disputes about the Kronheimer wing for consumption at the Austin Hospital have at last been settled and the wing has been opened for use.—The Premier of Victoria recently visited Geelong to inquire into a request of the committee of the Geelong Hospital for Government aid to erect infectious diseases wards. On the occasion of the Queen Victoria Diamond Jubilee the sum of £1700 was subscribed for the purpose, but the cost of the proposed buildings was estimated at £3250, the increased cost being mainly due to the requirements of the Board of Health. After discussion the Premier agreed to a Government grant of £800.

Illegal Operations.

Deaths from the results of operations to induce premature delivery have been exceptionally frequent in Sydney during the last few months. Four were the subject of coroner's inquiries since August 31st, two being married women. In two cases the nurses responsible for the operation and in one case the man, an unqualified practitioner, were committed for trial and the man and one of the nurses were found guilty and sentenced to ten and six years' penal servitude respectively. In another case the coroner said there was no doubt that the deceased was "another victim of one of Sydney's disreputable abortionists" but the evidence did not show who it was. In one of the cases the coroner also expressed the opinion that it was the duty of the medical man in attendance on cases of the kind, especially in a public institution, to inform the police early, so that the machinery of the law should be put in motion and the patient's depositions taken, and said: "If that had always been done in the past I have no doubt that many of these disreputable abortionists would now be spending their time in gaol and the lives of many unfortunate women would have been saved." It is difficult to get statistics on the subject but from 1894 to 1903 there were 425 deaths from malpractice in Sydney and it is only the fatal cases that come to light.

Dinner to Sir Philip Sydney Jones.

Sir Philip Sydney Jones, of Sydney, was entertained at a banquet at Barwood to congratulate him upon the knighthood recently confered on him. The principal speaker was Mr. G. H. Reid, leader of the opposition in the Federal Parliament. He said that success and universal esteem had come to Sir Philip Jones by absolute straightness, kindliness, and chivalry. In reply Sir Philip Jones said that he was born in Sydney and had seen it grow and prosper. The youth of to-day should be thankful that the schools in Sydney were now on a level with those in England. In his day they were not and he had to go to London for his education. He returned in 1860 and became connected with the Sydney Infirmary. He had made several trips to Europe since and he recommended medical men to travel. He also referred to his connexion with the University of Sydney and his efforts to establish sanatoriums for consumptives: the opening of the institution at Wentworth Falls was the realisation of the hope of years.

Death of the Rev. David Rutledge.

The Rev. David Rutledge, M.A., M.B., Ch.M., died at St. Stephen's Rectory, Sutton Forest, on Sept. 18th. He was one of the first seven students to enter the Medical School of the University of Sydney and the only one to pass the first final examination, being the first medical graduate. He practised for a time but re-entered the Church.

Oct. 9th.

Obituary.

JOHN HAWKES, M.D. ST. AND.

THE death took place at Bognor on Nov. 14th of Dr. John Hawkes, an able and devoted member of our profession. Born in 1831 at Wells he studied at St. Bartholomew's Hospital under Lawrence, Paget, and Burrows. He afterwards held posts in several large institutions and gained much esteem for his diligence and humanity as well as ability. Subsequently he entered on general practice in Norfolk and elsewhere. His services were always valued by his patients who on many occasions expressed their warm regard for him personally and professionally. He had great literary taste and produced both prose and verse of more than ordinary merit. He greatly enjoyed foreign travel and in 1860 made a record of one of his tours in a book on the West Indies. He also frequently contributed to THE LANCET and other medical journals. By the death of Dr. Hawkes there passes away a professional brother of high character and attainments whose memory will be deservedly cherished by a large circle of friends.

COLSTON ANNIVERSARY IN BRISTOL.—Nov. 13th was observed in Bristol as Colston Day. At the dinners at the Dolphin, Grateful, and Anchor Societies held in the evening the sum of £3628 was collected for the various charities.

A FIRE AT A MEDICAL PUBLISHERS' PREMISES.—We regret to learn from Messrs. John Wright and Co., the Bristol medical publishers and printers, that by the disastrous fire arising in a neighbouring warehouse on Nov. 4th the whole of their offices, factory, and stock were entirely destroyed. There are, however, a few copies of most of their publications at their London agents, Messrs. Simpkin and Co., Limited. These can be supplied so long as any remain. In the meantime a restart has been made in a temporary factory and most of the volumes are now being reprinted by themselves and by other firms throughout the country. In a few weeks they hope to re-issue the most urgent volumes and confidently trust to the forbearance of their friends for any temporary inconvenience thus unavoidably caused.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The following gentlemen passed the First Professional Examination for the Fellowship held on Nov. 9th, 10th, 14th, 15th, and 16th:—

Harry Andrese, M.R.C.S. Eng., L.R.C.P. Lond., University College Hospital; Vivian Boase Bennett, Capt. I.M.S., M.B., B.S. Lond., Liverpool University; Edmund Cecil Bevers, M.A., M.B., B.Ch. Oxon., M.R.C.S. Eng., L.R.C.P. Lond., Oxford University and Guy's Hospital; James Aitken Clark, St. Thomas's Hospital; Cecil Clarke, Bristol and King's College Hospital; John Dale, Birmingham University; Archibald Hugh Payan Dawnay, M.R.C.S. Eng., L.R.C.P. Lond., University College, St. Thomas's and King's College; Paul Gordon Fildes, B.A. Cantab., Cambridge University and London Hospital; Welby Earle Fisher, M.R.C.S. Eng., L.R.C.P. Lond., University College Hospital and Otago University, New Zealand; Eric Gerald Gauntlette, King's College; Gathorne Robert Girdlestone, B.A. Oxon., Oxford University and St. Thomas's Hospital; Arthur Charles Goodwin, M.B. Oxon., Oxford University and London Hospital; Alexander Edward Gow, St. Bartholomew's Hospital; Reginald Affleck Greeves, M.B., London, Guy's, and University College Hospitals; William Haywood Hamilton, Lieutenant I.M.S., M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's Hospital and King's College; Samuel Clifford Hayman, M.R.C.S. Eng., L.R.C.P. Lond., London Hospital and King's College; Edward Victor Hugo, M.D., B.Sc. Lond., M.R.C.S. Eng., L.R.C.P. Lond., St. Bartholomew's Hospital and King's College; Bertram Edward Ingleby, Cambridge University; John Swift Joly, B.A., M.D. Dub., Dublin University; James Leonard Joyce, B.A. Cantab., Cambridge University; Robert Knowles, B.A. Cantab., Cambridge University and St. Mary's Hospital; David Ligat, M.B., C.M. Glasg., D.P.H. Vict., Manchester, Glasgow University and London Hospital; Edward Leslie Martyn Lobb, Guy's Hospital; Robert Charles MacWatt, Major, I.M.S., M.B., C.M., B.Sc. Edin., Edinburgh University and King's College; Matthew Robert Cecil Mac Watters M.B. Lond., M.R.C.S. Eng., L.R.C.P. Lond., King's College Hospital; Francis Frederick Muecke, M.B., B.S. Adelaide, Adelaide University and London Hospital; Robert Bernard Price, St. Bartholomew's Hospital; Rowland Waters Rix, St. Thomas's Hospital; Robert Morison Rowe, M.A., M.D. Edin, M.R.C.S. Eng., L.R.C.P. Lond., Edinburgh University and St. Bartholomew's Hospital; Harry Archibald Sanford, Guy's Hospital; Robert Beresford Seymour Sewell, B.A. Cantab., Cambridge University; and Gilbert Francis Syms, Guy's Hospital.

90 candidates presented themselves for the examination, of whom 36 per cent. were approved and 64 per cent. were rejected. 26 candidates failed to satisfy the examiners both in anatomy and physiology; 24 in anatomy only; and eight in physiology only.

The following gentlemen passed in the subjects indicated at the First Professional Examination for the Licence in Dental Surgery held on Nov. 10th and 11th:—

Mechanical Dentistry and Dental Metallurgy.—Reginald H. C. Baker, National Dental Hospital; Ernest C. Barlow, Manchester; Ernest W. Barlow, University College, Sheffield; Howard D. Clapham, Royal Dental Hospital; Robert S. H. Drabble, Sheffield; Percy Gee, Liverpool; Joseph K. Hargreaves, Manchester; John H. Parsonage, Manchester; Ralph Redpath, Guy's Hospital; Edmund L. Renton, Royal Dental Hospital; John L. Reynolds, Manchester; Frank H. Salter, Royal Dental Hospital; Wilfrid T. Sansom, Birmingham; Rowland T. Wood, Royal Dental Hospital; Ernest Wright, D.D.S. Pennsylvania, University of Pennsylvania; and Stephen J. Wright, Birmingham.

Mechanical Dentistry.—Harold E. Alexander, Guy's Hospital; Reginald Bates, Manchester; William T. Clarke, Guy's Hospital; Ernest W. Cooke, National Dental Hospital; William L. Drabble, University College, Sheffield; Gordon Fryer, Royal Dental Hospital; Mark Hall, Durham; Richard Highton, Liverpool; Hugh W. Mace, Liverpool; Arthur T. Pitts, Royal Dental Hospital; Walter Rose, National Dental Hospital; and William H. Willsher, Royal Dental Hospital.

Dental Metallurgy.—Hugh G. Clark, Guy's Hospital; Percy G. H. Cox-Moore, Royal Dental Hospital; Harold G. Dumayne and Cecil C. Freer, Guy's Hospital; David G. Gibb, Royal Dental Hospital; Bernard Goldsmith, National Dental Hospital; Francis R. H. Myers, University College, Sheffield; Douglas C. L. Orton, M.R.C.S., L.R.C.P., Manchester; Harold O. Salt, Guy's Hospital; and Albert Torkington, Manchester.

EXAMINING BOARD IN ENGLAND BY THE ROYAL COLLEGES OF PHYSICIANS AND SURGEONS.—The following gentlemen passed the First Examination of the Board in the subjects indicated at the quarterly meeting of the examiners:—

Chemistry and Physics.—Albert Malcolm Barlow, London Hospital; Richard Shaw De Courcy Bennett, Guy's Hospital; Evan Percy Edwards, Cambridge University and Liverpool; Gordon Ernest Dormer Ellis, St. Bartholomew's Hospital; Cyril Douglas Faulkner, St. Mary's Hospital; Edwin Llewellyn Zenas Fickling, Birkbeck College; Doric Yvon Hylton, Bristol and Guy's Hospital; Alfred Herbert James, University College Hospital; Timothy Joseph Killiard-Leavey, Royal College of Science and Guy's Hospital; Francis William Lastic, Sheffield; Stanislaus Joseph Lauder, Bombay and London Hospital; Robert Telford Martin, London Hospital; Robert Sydney Overton, Birkbeck College and King's College Hospital; Hassan Ibrahim Shahin, Cairo and Guy's Hospital; Edward Smeed, University College Hospital; Arthur John Toser, St. Mary's Hospital; Alexander Watson, London Hospital; William Robert Owen Williams, Liverpool University; Alfred Bernard Wyman, Cambridge University and St. Bartholomew's Hospital; and Raphael Yood, Municipal Technical School, Manchester.

Physics.—Guy Matthews, King's College Hospital.

Elementary Biology.—Willoughby Gordon Grant, London Hospital; Walter Louis Ingram, Guy's Hospital; Donald McCully, University College Hospital; Colin McIver, Madras and University College Hospital; Henry James Nash and John Milnes Smith, St. Mary's Hospital; and Walter Vincent Tothill and Claude Bedford Welsby, London Hospital.

Practical Pharmacy.—Rupert Blake Adams, St. Mary's Hospital; José Maria Barrionuevo, Guy's Hospital; Richard Dunlop Barron, Otago University and Guy's Hospital; William Victor Corbett, St. Thomas's Hospital; Henry Gray Woodhouse Dawson, Sheffield and private study; Horace Leigh Dack, University of Sydney and St. Bartholomew's Hospital; Henzell Howard Dummere, London Hospital and private study; Ralph Annesley Fuller, St. Bartholomew's Hospital; Frederick William Wandby Griffin, Cambridge University and St. Bartholomew's Hospital; Arthur Reginald Hardy, Manchester and private study; Cyril John Roby Hoffmeister, Cambridge University and Middlesex Hospital; Charles Edward Horder, King's College Hospital; William John Jago, St. Bartholomew's Hospital; Bertram Abbott Keats, St. Bartholomew's Hospital and private study; James Arthur Richard Lee, Sheffield and private study; John Harry Mayston, Guy's Hospital; Howard Vincent Mitchell, Glasgow and Guy's Hospital; Humphrey Neame, London Hospital and private study; Henry Sandford Ollerhead, St. Mary's Hospital and private study; George Frank Page, St. Bartholomew's Hospital; Lewis Leslie Clayton Reynolds, Guy's Hospital and private study; Ivan Joseph Roche, Charing Cross Hospital; Lionel Duncan Stamp, Guy's Hospital; Lamay Donald Stubbs, University College Hospital; Oskar Teichmann, Cambridge University and St. Bartholomew's Hospital; John Glegg Watson, London Hospital; Leonard White, Westminster Hospital; and Percy Arthur With, St. Bartholomew's Hospital.

Materia Medica and Pharmacy.—John Stewart Farnfield, Guy's Hospital; and Ernest Ward Lowry, St. Bartholomew's Hospital.

The following gentlemen passed the Second Examination of the Board in the subjects indicated at the quarterly meeting of the examiners:—

Anatomy and Physiology.—Francis Brachi, St. George's Hospital; John Head Burdett, St. Mary's Hospital; Stephen Harold Cooke, Melbourne University and London Hospital; James Thomas Daly, L.D.S. Eng., Middlesex Hospital; Sidney Trevor Davies, St. Bartholomew's Hospital; John Beatson Dunning, Guy's Hospital; Evan Parry Evans, University College, Cardiff; John Crofton Fox, B.A. Cantab, Cambridge University and St. Thomas's Hospital; Henry George Frean, Cambridge University and London Hospital; Howell Woodwell Gabe, Middlesex Hospital; Harold Delf Gillies, B.A. Cantab., Cambridge University; Francis Jervis Gordon, B.A. Cantab., St. Bartholomew's Hospital; Sydney Francis Huth, St. Mary's Hospital; Martyn Henry Langford, Middlesex Hospital; Harold William Latham, London Hospital; John Thomas Lloyd, London Hospital; Arthur Alfred Lynch, M.A., C.E., University of Melbourne, Melbourne, and St. Mary's Hospital; Richard Hugh McGillycuddy, University College Hospital; Edward Kenneth Martin, University College Hospital; Eugene Augustus Mascarenhas, L.M. & S. Bombay, Bombay University and King's College Hospital; Jehangir Ardeshir Master, L.M. & S. Bombay, Bombay University and King's College Hospital; John Henry Meers, St. Mary's Hospital; Thomas Mackinlay Miller, St. Bartholomew's Hospital; Claude Harry Mills, Guy's Hospital; Howard Edward Hall Mitchell, Guy's Hospital; Reginald Arthur Morrell, St. Thomas's Hospital; Evan David Richards, University College, Cardiff; Norman Guy Hawtrey Salmon, Charing Cross Hospital; John Startin, St. Thomas's Hospital; Kenneth Henry Stokes, University College Hospital; Henry Hercules Skinner Templeton, University College, Bristol; Arthur Henry Leopold Thomas, St. Mary's Hospital; Howel Meirig Williams, Liverpool University; and James Graham Willmore, Cairo and Westminster Hospital.

Anatomy.—George Dunlop Martin, M.R.C.V.S., Guy's Hospital.

ROYAL COLLEGE OF SURGEONS IN IRELAND.—DENTAL EXAMINATION.—The following candidates having passed the necessary examination have been admitted Licentiates in Dental Surgery:—

E. Bermingham, J. W. Harvey, W. G. G. Quinn, and J. Walker.

The following candidates have completed the primary part of the examination:—

N. Allann, J. E. Hogan, C. J. Hyland, P. D. McCreery, and F. C. Warren.

TRINITY COLLEGE, DUBLIN.—At examinations held in the Michaelmas term the following candidates passed in the subjects indicated:—

PREVIOUS MEDICAL EXAMINATION.

Anatomy and Institutes of Medicine.—John A. W. Ponton, George F. Graham, George Halpin, Edward J. H. Garstin, Gordon A. Jackson, Thomas P. S. Eves, Oliver St. J. Gogarty, and Howard S. Millar.

Physics and Chemistry.—George E Craig, Duncan F. Hunter, Wm. H. M'Carthy, Wm. Nicholson, Thomas W. E. Henry, Edwin B. Bate, Robert E. Lee, Wm. A. R. Spong, Eric J. Powell, James E. M'Causland, Hugh S. Metcalfe, William H. Hart, Victor B. Kyle Richard Charles, Alex. K. Cosgrave, Cecil P. Smyly, and James A. Yourell.

Botany and Zoology.—Ralph Friel (Sch.), Charles Hanan, George E. Craig, Peter H. Lemass, James Alston, Arthur C. Hallowes, George B. M'Hutchinson, Charles J. Pentland, and Wm. H. M'Carthy.

HOSPITAL SUNDAY IN PLYMOUTH.—As a result of the collections on Hospital Sunday in Plymouth, which was observed on Oct. 29th, the sum of £602 has been handed to the treasurer of the South Devon and East Cornwall Hospital.

ST. GEORGE'S HOSPITAL CLINICAL SCHOOL ENDOWMENT FUND.—The following donations have been received by the treasurer of the St. George's Clinical School Endowment Fund: Lord Iveagh, £500; Messrs. N. M. Rothschild and Sons, £210; Dr. R. A. Gibbons, £205; and the Duke of Devonshire, £200.

LITERARY INTELLIGENCE.—The proprietors of the *Journal of Tropical Medicine* have arranged to incorporate *Climate* with their paper, and in order to meet the special requirements of the readers of *Climate* four issues a year, which can be subscribed for specially, will be devoted to this subject—viz., those published on Jan. 15th, April 15th, July 15th, and Oct. 15th.

WESTMINSTER HOSPITAL MEDICAL SCHOOL.—Dr. Bertram L. Abrahams's next lecture on Applied Physiology will be given on Thursday, Nov. 30th, at 5 P.M., at the Westminster Hospital Medical School, and not on the date previously announced. There will be an additional lecture on Thursday, Dec. 7th, at the same time and place. The lectures are free to graduates and students of the University of London.

THE DEPTFORD BOROUGH COUNCIL AND THE DEVELOPMENT OF PREVENTIVE MEDICINE.—The Deptford borough council has agreed that the Clinical Research Association should make bacteriological examinations and reports upon specimens of blood for typhoid fever and membrane for diphtheria at a fee of 3*s.* 6*d.* for each specimen of the former and 4*s.* 6*d.* for each specimen of the latter, subject to a reduction of 15 per cent. This agreement is to continue for 12 months.

SOCIETY OF ARTS.—The current session of the Society of Arts was opened on Nov. 15th, when Sir Owen Roberts, the President, delivered an address on Arts, Manufactures, and Commerce. He said that the society, which was founded in 1754 and incorporated by Royal Charter in 1847, concerned itself with every form of intellectual effort connecting science and art with the mercantile and industrial progress of the nation. He then sketched the history of the rise of trades and manufactures in this country and showed that a very important part was taken in this movement by the livery companies of the City of London. Some of the London companies received charters of incorporation in the reign of Edward III. There are guilds still extant at Coventry, Chester, Newcastle, York, Norwich, and Exeter, as well as more wealthy and important ones in Bristol, Sheffield, and Edinburgh. On the continent of Europe few are left, Berne being the only capital in which they survive. At the foundation of the Society of Arts the scope of its action was very extensive and this catholicity of character it has preserved throughout its career. In 1846 prizes were offered to manufacturers and designers for the production of articles of everyday use and exhibitions of objects of decorative art were held in 1847, 1848, 1849, and 1850. The success of these exhibitions led the way for the first great exhibition of 1851. The Society of Arts had a potent influence on the movement for improving technical instruction which began soon after the passing of Mr. Forster's Elementary Education Act of 1870 and the present system of technological examinations carried out by the City and Guilds of London Institute also owes its origin to the society. This institute was constituted in 1876, representing a confederation of guilds able and willing to devote a portion of their means towards the promotion of technical education. In conclusion, Sir Owen Roberts referred to the Cantor lectures of the Society of Arts, founded in 1863 as the outcome of Dr. Cantor's bequest, and to the recent report on leather for bookbinding, the work of a committee appointed by the council of the society and liberally aided by the Leathersellers' Company. At the termination of the address, which occupied an hour in delivery, a vote of thanks was moved by Lord Kelvin and seconded by Sir John Wolfe Barry. A number of medals were then handed to the readers of various papers before the society last session. One of them was awarded to Lord Mountmorres, director of the Liverpool School of Tropical Medicine, for a paper on the Native Races of the Unknown Heart of Central Africa, and another one to Dr. Charles Creighton for a paper on Plague in India.

THE QUEEN'S JUBILEE HOSPITAL.—We are informed by Mr. A. H. Pavan Dawnay, Dr. F. W. Forbes-Ross, and Dr. A. Gordon Wilson that they have resigned their respective posts upon the honorary staff of this institution.

A SOMERSETSHIRE CENTENARIAN.—Mrs. Harriet Brunt of Berrow, Somerset, celebrated the 100th anniversary of her birth on Nov. 17th.

NOTIFICATION OF PULMONARY TUBERCULOSIS.—The Ashby-de-la-Zouche urban district council has decided to pay a notification fee of 2*s.* 6*d.* for cases of pulmonary tuberculosis.

UNIVERSITY OF OXFORD.—John Scott Haldane, M.A., Fellow of New College, M.D. Edin., F.R.S., has been re-appointed Lecturer in Physiology for a period of three years.—The degree of Doctor of Medicine has been conferred on Francis J. Stevens, Exeter College.

LIVERPOOL MEDICAL INSTITUTION.—The first meeting of the session of this society was held on Nov. 16th, Sir James Barr, the President, being in the chair.—A hearty vote of congratulation was accorded to the President in view of the honour recently conferred upon him.—Sir James Barr then delivered his inaugural address, taking as his subject the Treatment of Arterio-sclerosis.—A vote of thanks to the President was proposed by Dr. Frederick T. Roberts and seconded by Mr. Reginald Harrison.

UNIVERSITY OF CAMBRIDGE.—The late Mr. W. D. D. Crotch, M.A., has bequeathed, subject to certain life interests, the residue of his estate, valued at about £8000, to form a fund for the purchase of books and specimens for the Museum of Zoology.—The following have been appointed examiners in State Medicine: Mr. J. E. Purvis, Dr. G. H. F. Nuttall, Dr. J. Lane Notter, Dr. R. D. Sweeting, and Dr. A. Newsholme.—The following have been appointed examiners in Tropical Medicine and Hygiene: Dr. Nuttall, Dr. C. W. Daniels, and Professor Ronald Ross, C.B.—Dr. C. S. Sherrington, F.R.S., has been elected an Honorary Fellow of Gonville and Caius College.—Dr. Donald MacAlister, as deputy Vice-Chancellor, has been reappointed chairman of the Board of Geographical Studies.

SANATORIUMS FOR TUBERCULOUS WORKERS.—A meeting convened by Princess Christian of Schleswig-Holstein as President of the National Association for the Establishment and Maintenance of Sanatoria for Workers Suffering from Tuberculosis, was held at the Memorial Hall, Farringdon-street, London, E.C., upon the evening of Nov. 18th. Mr. C. H. Garland presided and amongst others there were present the Bishop of Stepney, Mr. W. Crooks, M.P., and Mr. Malcolm A. Morris. The chairman in his opening speech said that the question of the prevention and treatment of tuberculosis affected the working classes more than any other class in the country. The scheme of the association was to erect sanatoriums which would be maintained and managed by the workers themselves. 30,000 workers in the postal service had promised contributions towards the endowment of beds in the first sanatorium but for the funds wherewith to erect the buildings they had to appeal to the public. The Bishop of Stepney said that the movement offered the best class of working men an opportunity to take their part in the fight against tuberculosis. Mr. Crooks said that the workers would set an example to the whole world as to how to do the work. The scheme would be a success and, moreover, it would become so important that the nation would have to take it up. Sir A. Rollit, M.P., moved:—

> That this meeting of representatives and members of trade unions, friendly societies, and other organisations of workers cordially approves the scheme prepared by the National Association for the Establishment and Maintenance of Self-supporting Sanatoria.

He said that the first sanatorium would be in Kent. It would be self-sustaining, would not consist of too expensive buildings, and would have surrounding it from 200 to 300 acres of land. The motion was seconded by Dr. T. D. Lister and unanimously adopted. Mr. Morris moved a vote of thanks to Princess Christian, which was seconded by Dr. Arthur C. Latham and carried by acclamation.

BOOKS, ETC., RECEIVED.

D. VAN NOSTRAND COMPANY, New York. (KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, London).

Food Preservatives: their Advantages and Proper Use. The Practical *versus* the Theoretical Side of the Pure Food Problem. By R. G. Eccles, M.D., Phar.D., Fellow of the American Association for the Advancement of Science; Member of the American Chemical Society; Chairman of the Sub-committee on Active Principles and Ferments of the United States Pharmacopœia (1890 to 1900); Vice-President of a Washington Pure Food and Drug Congress. With an Introduction by E. W. Duckwall, M.S., Member of Society of American Bacteriologists. Price $1.00.

HIRSCHWALD, AUGUST, Unter den Linden, 68, Berlin, N.W.

Zur Frage der Bor-Wirkungen. Eine Kritik des Dr. Wileyschen Berichtes an das Amerikanische Ackerbau-Ministerium. Von Dr. Oscar Liebreich, a. ö. Professor, Geh. Med.-Rat. Price M.4.

Stoffwechsel und Stoffwechselkrankheiten. Einführung in das Studium der Physiologie und Pathologie des Stoffwechsels für Aerzte und Studierende. Von Dr. Paul Friedrich Richter, Privatdozent und Laboratoriumsvorstand am Poliklinischen Institut für innere Medizin an der Universität Berlin. Price M.8.

HODDER AND STOUGHTON, 27, Paternoster-row, E.C.

With the Abyssinians in Somaliland. By Major J. Willes Jennings D.S.O., R.A.M.C., Principal Medical Officer of the Force, and Christopher Addison, M.D., F.R.C.S., Lecturer on Anatomy, Charing Cross Hospital Medical School, who arranged the matter for publication. With a Preface by Colonel A. N. Rochfort, C.B., C.M.G., R.A., Inspector of Royal Horse and Royal Field Artillery. And 65 Illustrations from Photographs taken by Major Jennings, and a Map. Price not stated.

KEGAN PAUL, TRENCH, TRÜBNER, AND CO., LIMITED, Dryden House, Gerrard-street, W.

The World's Desires or the Results of Monism. An Elementary Treatise on a Realistic Religion and Philosophy of Human Life. By Edgar A. Ashcroft. Price 10s. 6d. net.

LONGMANS, GREEN, AND CO., 39, Paternoster-row, E.C.

The Physiology and Therapeutics of the Harrogate Waters, Baths, and Climate applied to the Treatment of Chronic Disease. By William Bain, M.D. Durh., M.R.C.P. Lond., and Wilfrid Edgecombe, M.D. Lond., F.R.C.S. Eng. Price 7s. 6d. net.

Qualitative Chemical Analysis, Organic and Inorganic. By F. Mollwo Perkin, Ph.D., Head of the Chemistry Department, Borough Polytechnic Institute, London. Third impression. Second edition. Price 4s.

The Unit of Strife. By E. K. Garrod. Price 3s 6d. net.

MACMILLAN AND CO., LIMITED, London.

A Study in Nursing. By Miss A. L. Pringle, formerly Matron of St. Thomas's Hospital, Superintendent of the Nightingale Training School for Nurses, Superintendent of the Nurses at Edinburgh Royal Infirmary. Price 1s. net.

METHUEN AND CO., 36, Essex-street, W.C.

Master Workers. By Harold Begbie. With 8 portraits. Price 7s. 6d. net.

SAUNDERS, W. B., AND CO., 9, Henrietta-street, Covent Garden, W.C.

Abdominal Operations. By B. G. A. Moynihan, M.S. Lond., F.R.C.S., Leeds. Price 28s. net.

Lectures upon the Principles of Surgery delivered at the University of Michigan by Chas. B. Nancrede, A.M., M.D., LL.D., Professor of Surgery and of Clinical Surgery in the University of Michigan, Professor of Surgery in Dartmouth Medical College. With an Appendix containing a Résumé of the Principal Views held concerning Inflammation. By Wm. A. Spitzley, A.B., M.D., late Senior Assistant in Surgery, University of Michigan. Second edition, thoroughly revised. Price 10s. 6d. net.

A Text-book of Diseases of Women. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania, Gynæcologist to the Howard, the Orthopedic, and the Philadelphia Hospitals. Second edition, rewritten and enlarged. Price 21s. net.

Atlas and Epitome of Diseases of the Skin. By Dr. Franz Mracek, Professor of Dermatology in the University of Vienna. Authorised translation from the German. Second edition, revised and enlarged. Edited by Henry W. Stelwagon, M.D., Ph.D., Professor of Dermatology, Jefferson Medical College, Philadelphia. Price 16s. net.

A Text-book of Clinical Diagnosis by Laboratory Methods. For the Use of Students, Practitioners, and Laboratory Workers. By L. Napoleon Boston, A.M., M.D., Associate in Medicine and Director of the Clinical Laboratories, Medico-Chirurgical College, Philadelphia. Second edition, revised and enlarged. Price 18s. net.

Anatomy and Physiology for Nurses. By LeRoy Lewis, M.D., Surgeon to and Lecturer on Anatomy and Physiology for Nurses at the Lewis Hospital, Bay City, Michigan. Price 7s. 6d. net.

SWAN SONNENSCHEIN AND CO., LIMITED, London.

Sanatoria for Consumptives. A Critical and Detailed Description together with an Exposition of the Open-Air or Hygienic Treatment of Phthisis. By F. Rufenacht Walters, M.D., M.R.C.P., F.R.C.S., late Physician to the Mount Vernon Hospital for Consumption and Diseases of the Chest. Third edition. Price 12s. 6d. net.

VIGOT FRÈRES, 23, Place de l'École de Médecine, Paris.

Etudes de Médecine Sociale et Professionnelle. La Réforme de l'Enseignement Médical. Par le Dr. Paul Berthod, Ancien Président du Syndicat des Médecins de la Seine, Vice-Président de la Société de l'Internat des Hôpitaux de Paris. Extrait des "Archives Générales de Médecine," Juillet-Septembre, 1905. Price 50 centimes.

Blessures de l'Œil à la suite d'Accidents du Travail. Simulation et Aggravation Volontaires. Par S. Baudry, Professeur de Clinique Ophthalmologique à l'Université, Médecin-expert près le Tribunal de Lille. Price Fr.1.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

ANDREW, JAMES GRANT, M.B., M.S. Glasg., has been appointed Surgeon to the new wards at the Victoria Infirmary, Glasgow.

ARCHIBALD, R. J., M.R.C.S., L.R.C.P. Lond., has been appointed Clinical Assistant to the Chelsea Hospital for Women, Fulham-road, London, S.W.

BURGESS, ARTHUR H., F.R.C.S. Eng., M.B., M.Sc. Vict., has been appointed Honorary Assistant Surgeon to the Manchester Royal Infirmary.

CAMPBELL, DONALD, M.D., C.M. Glasg., has been appointed Medical Officer of Health of Calne (Wilts).

FISHER, THEODORE, M.D. Lond., M.R.C.P. Lond., M.R.C.S., has been appointed on the Honorary Medical Staff of the East London Hospital for Children, Shadwell.

GROVES, ERNEST J. C., M.B., Ch.B. Edin., has been appointed House Surgeon at the Swansea General and Eye Hospital.

HEWKLEY, FRANK, M.B. Durh., F.R.C.S. Eng., has been appointed Clinical Assistant to the Western Ophthalmic Hospital.

MULLIN, JOHN, L.R.C.P. & S. Edin., has been appointed Medical Officer of Health of Strokestown, Ireland.

PEARSON, J. SIDNEY, M.B. Cantab., M.R.C.S., L.R.C.P., has been appointed Senior Resident Medical Officer at St. Mary's Hospital for Women and Children, Plaistow, E.

SHORT, ARTHUR RENDLE, M.D., B.S., B.Sc. Lond., has been appointed House Surgeon at the Bristol Royal Infirmary.

SMITH, H. HAMMOND, M.R.C.S., L.R.C.P. Lond., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for Brentford, Brompton, and Marylebone County Courts in County Court Circuit No. 43.

TEASDALE, J. C., M.B., Ch.B. Vict., M.R.C.S. Eng., has been appointed Surgeon to the Retford Hospital.

WARREN, RICHARD, M.D., B.Ch. Oxon., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Senior House Surgeon at Poplar Hospital for Accidents.

WEIR, JAMES, M.B., M.S. Glasg., has been appointed Assistant Surgeon to the new wards at the Victoria Infirmary, Glasgow.

WILLIAMS, M. T., M.B., B.S. Lond., F.R.C.S. Eng., has been appointed Honorary Physician to the Kent and Canterbury Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

ARMY MEDICAL SERVICE, War Office, S.W.—Forty Commissions in the Royal Army Medical Corps.

BETHLEM HOSPITAL.—Two Resident House Physicians, unmarried, for six months. Honorarium at rate of £25 quarterly, with apartments, board, and washing.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES.—Clinical Assistant. Honorarium at rate of 52 guineas per annum.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Second House Surgeon, unmarried. Salary £60 per annum, with board and residence.

BURNLEY, VICTORIA HOSPITAL FOR BURNLEY AND DISTRICT.—Resident Medical Officer. Salary £100 per annum, with residence, board, and washing.

CAMBRIDGE, ADDENBROOKE'S HOSPITAL.—Assistant House Surgeon. Salary at rate of £50 per annum, with board, residence, and laundry.

CENTRAL LONDON THROAT AND EAR HOSPITAL, Gray's Inn-road.—House Surgeon. Honorarium 40 guineas per annum.

DONNYBROOK, DUBLIN, ROYAL HOSPITAL FOR INCURABLES.—Resident Medical Officer, unmarried. Salary £120 per annum, with board and apartments.

DORCHESTER, COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £180, rising to £220.

DURHAM COUNTY ASYLUM.—Second Assistant Medical Officer. Salary £180 per annum (rising to £230), with rooms, board, laundry, and attendance.

EVELINA HOSPITAL FOR SICK CHILDREN, Southwark.—House Physician and House Surgeon. Salary £80 respectively, with board, residence, and washing. Also Assistant House Surgeon. Salary £70, with board, residence, and washing.

EXETER ROYAL DEVON AND EXETER HOSPITAL.—Assistant House Surgeon, unmarried. Salary £60 per annum, with board, lodging, and washing.

GREENWICH, LONDON SCHOOL OF CLINICAL MEDICINE.—Medical Superintendent of the Hospital and School. Salary £300 per annum and fees.

HAMPSTEAD GENERAL HOSPITAL.—Two Anæsthetists.

INDIAN MEDICAL SERVICE, India Office, London.—Twenty-one Commissions in His Majesty's Indian Medical Service.

IPSWICH, BOROUGH OF.—Medical Officer of Health. Salary £400 per annum, increasing to £500.

IPSWICH, EAST SUFFOLK AND IPSWICH HOSPITAL.—First and Second House Surgeons, unmarried. Salaries £80 and £60 respectively per annum, with board, lodging, and washing.

ISLE OF MAN LUNATIC ASYLUM.—Assistant Medical Officer. Salary £120 per annum, with board, quarters, and washing.

ITALIAN HOSPITAL, Queen-square, London, W.C.—House Surgeon. Salary £60 per annum, with board and residence.

LAMBETH BOARD OF GUARDIANS.—Second and Third Assistant Medical Officers (in-door and out-door). Salary of the former £160 per annum and that of the latter £125 per annum, with the usual residential allowances.

LIVERPOOL STANLEY HOSPITAL.—Honorary Ophthalmic Surgeon.

LIVERPOOL WORKHOUSE, Brownlow Hill.—Assistant Medical Officer. Salary £100 per annum, with rations.

LONDON TEMPERANCE HOSPITAL.—Assistant House Surgeon for six months. Honorarium at rate of £75 per annum.

LOUGHBOROUGH AND DISTRICT GENERAL HOSPITAL AND DISPENSARY.—Resident House Surgeon. Salary £80 a year, with rooms, attendance, and board.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Two Medical Officers. Salaries £65 and £60 per annum, with board and residence.

METROPOLITAN HOSPITAL, Kingsland-road, N.E.—Medical Officer in Charge of the Electrical Department. Honorarium £52 10s. per annum.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C.—Registrar. Honorarium of 50 guineas. Also Junior House Physician. Salary £50 per annum, with board and residence.

NEWCASTLE-UPON-TYNE, UNIVERSITY OF DURHAM COLLEGE OF MEDICINE.—Demonstrator of Physiology. Salary £200 per annum.

NEWPORT BOROUGH ASYLUM, Caerleon, Mon.—Assistant Medical Officer, unmarried. Salary £150 per annum, with board, apartments, and attendance.

NORFOLK AND NORWICH HOSPITAL.—Second Assistant House Surgeon for six months. Honorarium £20, with board, lodging, and washing.

PADDINGTON-GREEN CHILDREN'S HOSPITAL, London, W.—Honorary Anæsthetist.

ROYAL COLLEGE OF PHYSICIANS.—Milroy Lecturer for 1907.

ROYAL PIMLICO DISPENSARY, 104, Buckingham Palace-road.—Resident Medical Officer and Secretary. Salary £100, unfurnished house, and percentage.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square.—Honorary Physician.

ST. THOMAS'S HOSPITAL.—Anæsthetist.

SUNDERLAND INFIRMARY.—Third House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

SWANSEA GENERAL AND EYE HOSPITAL.—Assistant House Surgeon. Salary £50 per annum, with board, apartments, washing, and attendance.

TUNBRIDGE WELLS GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, apartments, and attendance.

WAKEFIELD, WEST RIDING ASYLUM.—Pathologist and Assistant Medical Officer. Salary £140, rising to £160, with apartments, board, washing, and attendance.

WESTERN SKIN HOSPITAL, Great Portland-street, London, W.—Honorary Physician to Electrical Department. Also Honorary Pathologist.

WHITEHAVEN AND WEST CUMBERLAND INFIRMARY.—Resident House Surgeon. Salary £120 per annum, with board and lodging.

WORCESTER GENERAL INFIRMARY.—House Physician. Salary £30 per annum, with board and residence.

YORK CITY LUNATIC ASYLUM.—Assistant Medical Officer, unmarried. Salary £140, with board, residence, attendance, and washing.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies as Certifying Surgeons under the Factory and Workshop Act at Fakenham, in the county of Norfolk; and at Dornoch, in the county of Sutherland.

Births, Marriages, and Deaths.

BIRTHS.

BEADLES.—On Nov. 19th, at St. John's House, Barking-road, the wife of Harold S. Beadles, M.R.C.S., of a son.

MASINA.—On Oct. 7th, at Warden-road, Malabar Hill, Bombay, India, the wife of H. M. Masina, F.R.C.S., of a son.

MURRAY.—On Nov. 19th, at Hunadon, Kenilworth, Cape Colony, the wife of Charles M. Murray, M.B., B.C., of a daughter.

PORTER.—On Nov. 17th, at Maunside, Sutton-in-Ashfield, Notts, the wife of Hordman Porter, M.B. Edin., of a son.

WALKER.—On Nov. 20th, at Willford Lodge, Esher, the wife of Reginald Field Walker, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

MARRIAGES.

EASTERBROOK—THOMSON.—On Nov. 18th, at Edinburgh, by the Rev. Robert Small, minister of Caddonfoot, Selkirkshire, assisted by the Rev. S. Marcus Dill, M.A., minister of Alloway, Charles Crombali Easterbrook, M.D., F.R.C.P. Edin., Glengall, Ayr, to Annie Elliot, elder daughter of the late Mr. and Mrs. William Thomson, Clovenfords, N.B.

WALES—MOXON.—On Nov. 15th, at All Saints' Church, Hull, by the Rev. W. E. Smith, M.A., vicar, Herbert Wales, M.A., M.B., B.C. Cantab., of Gargrave-in-Craven, elder son of T. P. Wales of Scarboro', to Bertha, eldest daughter of B. H. Moxen, L.R.C.P. Lond., of Hull.

DEATHS.

ALDRIDGE.—On Nov. 14th, at Anglesea-place, Southampton, John Henry Aldridge, M.D., M.R.C.S., J.P., in his 76th year.

CRESSWELL.—On Nov. 22nd, at Dowlais, Glamorgan, Pearson Robert Cresswell, C.B., F.R.C.S., Honorary Colonel 3rd V.B. Welsh Regiment, in his 72nd year.

DALY.—On Nov. 21st, at Nayland Robert Bernard Daly, L.R.C.S. & P.I., late House Surgeon at Jervis Street Hospital, Dublin, aged 27 years.

FOTHERBY.—On Nov. 18th, at Woodthorpe Cote, Reigate, Henry Isaac Fotherby, M.D., late of Finsbury-square, London, aged 83 years.

ROBERTSON.—At 337, Brixton-road, London, on Nov. 21st, Eleanor Ann Ferguson, the beloved wife of John Robertson, L.R.C.P., L.R.C.S. Edin., and daughter of the late John Ferguson, M.D., of Nigg, Kincardineshire.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

OVERCROWDING OF TRAINS IN LONDON AND VICINITY.

Mr. Yerkes is apparently a humorist if he has been reported correctly in saying that Londoners are the worst people he ever met "to get a move on." He said these words in America and they were probably designed as a sort of comic comment on the general decadence of Great Britain. Now, it happens that the attention of the public—that of the London public and also that of the vast suburban public daily sojourning in the metropolis—has been acutely drawn to the management of the underground railway (the Metropolitan and the District) for which Mr. Yerkes is supposed to be considerably responsible. "There is no word for" the management, as the baffled costermonger said. It is the worst thing in managements that London has ever known. It was predicted that when electricity had been substituted for steam as a motive power on these lines overcrowding would be a thing of the past, trains would move with clean comfortable carriages silently, swiftly, and regularly to their destinations. The optimists, however, who held such views overlooked the obvious fact that with the increased facilities for quick locomotion provided by the employment of electricity, to say nothing of the superior healthiness and comfort of travelling, there would be a very considerable increase of traffic. But ought the management to have been equally blind? The numerous complaints sent to the papers by passengers, regular and chance, must have their foundation in fact—the trains must be slow, infrequent, and overcrowded. This makes particularly indiscreet the criticisms of Mr. Yerkes on the slowness of Londoners. Londoners, and for that matter all the population, are quite willing to travel quickly but the facilities are not provided for them on the lines for which Mr. Yerkes is partly responsible.

FILTHY ADVERTISEMENTS.

To the Editors of THE LANCET.

SIRS,—Your much needed editorial article has come, I trust, to rouse public opinion on the demoralising influences of these infamous advertisements. Here, however, in this district the public does not depend on journals for the supply of, or an object-lesson on, checks to population. The demand for information and supply is met by the local legitimate chemists who make a window display of sheaths, quinine and "check" pessaries, female pills, &c., marked in many cases at prices which defy competition by the advertisers to whom you have referred. An article upon filthy window advertisements might shame some of these tradesmen into respecting the community in the midst of which they live.

I am, Sirs, yours faithfully,

Leyton, E., Nov. 20th, 1905. D. P. H.

SEPTICÆMIA FOLLOWING A SCRATCH.

AN inquest was held at Chelmsford on Nov. 16th touching the death of a man named Albert Mison. It is stated that the deceased, while "larking" with a young woman in the kitchen of a hotel, had had his nose scratched, that blood poisoning followed, and that this was the cause of death. The girl admitted that the deceased had shown her the scratch but a man who gave evidence said that two days after the alleged "larking" the deceased had no mark whatever on his face. The jury returned a verdict that "Deceased died from blood poisoning caused by a scratch, but there was no evidence to show how or when the scratch was caused." Septicæmia may be brought about in so many ways that it is often impossible to define exactly either the causation or the time of the onset of the disease. The germs to which it is due are ubiquitous and may gain entrance by any wound or abrasion of the surface, such as the bite of a fly, a scratch from a cat or other animal, or possibly even through the apparently unbroken skin. If the resisting power of the body is at all below par infection follows, as has been known to medical men from time immemorial. But when death follows, and follows quickly and directly, upon a trivial and almost imperceptible injury the tragedy of the event seems enhanced.

THE SCIENCE OF ADVERTISEMENT.

THE pressure of modern commercial competition has led to the composition of advertisements which in many cases are neither more nor less than direct lies, while in others truth and falsehood are so cunningly blended as almost to deceive the very elect. A notable instance of this last class now lies before us, being the advertisement of a quack institution called the Bristol Electropathic Institute. In this advertisement the names of Dr. G. R. Murray, who, by the way, we note is called "Health Professor," of Sir Victor Horsley, and of THE LANCET are taken in vain. Though, so far as we can tell, nothing is said other than what Dr. Murray and Sir Victor Horsley have said, yet their statements are so quoted as to make it appear that they recommend the Bristol Electropathic Institute and we are perfectly certain that neither of the two has ever done so. Moreover, the concluding paragraph of Dr. Murray's lecture is credited to THE LANCET. The advertisement is distinctly misleading and we are surprised to see a respectable journal like the *Western Daily Press*, in the columns of which it appears (Nov. 16th), taking money from such a tainted source.

THE LONDON TEMPERANCE HOSPITAL AND TEMPERANCE STATISTICS.

To the Editors of THE LANCET.

SIRS,—In reply to Dr. Dawson Burns, may I be allowed to assure him that I am in no need of his sympathy and am not "blind to the full significance of my expressions." May I also venture to assert that it is the staff of the Temperance Hospital that has pronounced a "positive" judgment on the alcohol question and one, moreover, in opposition to the opinion of the profession at large. Indeed, I should not be far wrong in suggesting that the founders of the Temperance Hospital had already fully made up their minds on the question before the opening day. No doubt also, like good business men, they would take care that the gentlemen they appointed to their staff were known to be in more than general sympathy with the "cause." The egotism of these gentlemen in supposing that the staffs of all the general hospitals are in the habit of looking to the Temperance Hospital for a therapeutical lead hardly needs comment from me, but the knowledge of medicine and therapeutics has advanced in many directions since the date of the founding of the Temperance Hospital, though not perhaps in consequence of that event, and I should be sorry to assert that the profession as a whole is any less anxious to solve the alcohol question than their brethren of the Temperance Hospital. Dr. Dawson Burns has plenty of satire for me but a paucity of argument, whereas a number of medical men are most desirous of giving the most careful consideration to any data of a scientific character that he may be inclined to adduce in support of the practice at his hospital (debatable statistics, of course, being barred) such as the exact number of cases in which it has been considered necessary to administer alcohol, their nature, the size and number of doses, and the results observed. Has there ever been a fatal case of typhoid fever in the hospital in which, when heart failure or collapse was threatening or pulmonary congestion, insomnia, muttering delirium, or very high temperature were prominent symptoms, the patient had been denied the possible benefit of the administration of alcohol for some days before death ensued? I am, Sirs, yours faithfully,

St. Mary Axe, E.C., Nov. 20th, 1905. A. H. COPEMAN.

THE SALE OF MEDICAL LITERATURE.

To the Editors of THE LANCET.

SIRS,—Will any of your readers tell me where I may sell my superfluous stock of medical books? I have a large library and they are earlier editions of standard works.

I am, Sirs, yours faithfully,

Nov. 20th, 1905. MEDICO.

RAMIE FIBRE.

Messrs. A. M. Hart and Co. of 13, Gerrard-street, W., have submitted to us samples of various fabrics woven from ramie fibre. This fibre, which is that of a grass growing in China, possesses a silky lustre and is apparently extremely strong. Among the many purposes more or less medical for which it may be used are for netting, for mosquito curtains, and as sheeting for stretchers or hammocks. It is said to be both rain-proof and rot-proof and we should say would stand even the manipulations of an Indian dhobie and possibly also the machinations of an English steam laundry. It can also be used for dress fabrics and it possesses one very important quality—viz., it is far less inflammable than cotton. We set fire to a specimen of mosquito netting and although, of course, the fabric is more inflammable than either wool or silk it burns very quietly and can be easily extinguished. We should think that strips of this netting might well be used in place of the present gauze bandages or the crinoline muslin used for making plaster bandages, although possibly the question of expense would stand in the way of its use in the case of hospitals.

FERTILISED EGGS.

To the Editors of THE LANCET.

SIRS,—With respect to your annotation on this subject in THE LANCET last week some of your readers may be interested to recall that Sir John Falstaff, in *The Merry Wives of Windsor*, Act III., Scene V., distinctly objected to fertilised eggs in the following passage:—

> *Falstaff:* Take away these Chalices: Go brew me a pottle of sack finely.
> *Bardolph:* With eggs, Sir?
> *Falstaff:* Simple of itself; I'll no pullet sperm in my brewage.

I am, Sirs, yours faithfully,

Nov. 21st, 1905. CICATRICULA.

MOTOR-CARS FOR MEDICAL MEN.

To the Editors of THE LANCET.

SIRS,—I should like to know if any of your readers have used one of the 100 guinea cars advertised by the Rover Cycle Company. I am looking out for a cheap car but should like to hear the opinion of any medical man who has had an extended experience of the car with special reference to reliability and petrol consumption.

I am, Sirs, yours faithfully,

Nov. 20th, 1905. MECHANICAL.

J. G. B.—We have not the circumstances before us, but it is an unfortunate fact that some coroners have, particularly of recent times, taken to belittling the medical profession.

Iota.—The report in question can be obtained from the Metropolitan Asylums Board and the price, we believe, is 6*s*.

Dr. Henry Dobson is thanked for his letter.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (27th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Children, Gt. Ormond-street (3 P.M.).

TUESDAY (28th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (2 P.M., Ophthalmic, 2.15 P.M.).

WEDNESDAY (29th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9.30 A.M., Dental, 2 P.M.).

THURSDAY (30th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.), Royal Ear (2 P.M.), Children, Gt. Ormond street (2.30 P.M.).

FRIDAY (1st).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Central London Throat and Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.).

SATURDAY (2nd).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond street (9.30 A.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (2.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

MONDAY (27th).—MEDICAL SOCIETY OF LONDON (11, Chandos-street, Cavendish-square, W.).—8.30 P.M. Discussion on Rheumatoid Arthritis (opened by Dr. A. Garrod).

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN (20, Hanover-square, W.).—7 P.M. Council. 8 P.M. Paper:—Mr. J. F. Colyer: Variations and Diseases of the Teeth of Horses (illustrated with lantern slides and specimens).

SOCIETY OF ARTS (John-street, Adelphi, W.C.).—8 P.M. Dr. J. A. Fleming: The Measurement of High Frequency Currents and Electric Waves. (Cantor Lectures.) (Lecture I.)

TUESDAY (28th).—ROYAL MEDICAL AND CHIRURGICAL SOCIETY (20, Hanover square, W.).—8.30 P.M. Exhibition of Specimens and Demonstration by means of Epidiascope projection. Special Discussion introduced by the following Papers:—Dr. A. E. Wright: The General Principles of Therapeutic Inoculation by Bacterial Vaccines as applied to the Treatment of Tubercular Infection.—Dr. D. Lawson and Dr. I. S. Stewart: A Study of some Points in Relation to the Administration of Tuberculin (T.R.) controlled by Observations of the Opsonic Index in Pulmonary Tuberculosis.—Dr. W. Bulloch: The Treatment of Tuberculosis by Tuberculin.—Mr. J. Pardoe: The Treatment of Tuberculosis of the Urinary System by Tuberculin (T.R.).

THERAPEUTICAL SOCIETY (Apothecaries' Hall).—4.30 P.M. Papers:—Dr. W. E. Dixon: On the Physiological Standardisation of Drugs.—Dr. C. O. G. Hawthorne: Note on Drug Idiosyncrasies in Relation to an Official Dosage.

THURSDAY (30th).—CHILDHOOD SOCIETY AND THE BRITISH CHILD-STUDY ASSOCIATION (Parkes Museum, Margaret-street, W.).—8.15 P.M. Lecture:—Dr. F. Warner: Training of Teachers for the Care of the Feeble-minded. (Arranged by the Childhood Society.)

FRIDAY (1st).—WEST KENT MEDICO-CHIRURGICAL SOCIETY (Miller Hospital, Greenwich-road, S.E.).—8.45 P.M. Mr J. Hutchinson: Skin Diseases caused by Insects. (Purvis Oration.) Conversazione. Exhibition of Electrical Apparatus, Surgical Instruments, and Books.

SOCIETY OF ANÆSTHETISTS (20, Hanover-square, W.).—Paper:—Mr. J. H. Chaldecott: The Evolution of Ethyl Chloride.

LARYNGOLOGICAL SOCIETY OF LONDON (20, Hanover-square, W.).—5 P.M. Exhibition of Cases and Specimens by Dr. W. Williams, Dr. H. Barwell, Mr. de Santi, and others.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (27th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. J. Galloway: Clinique. (Skin.) 5.15 P.M. Mr. F. C. Wallis: Intestinal Neoplasms.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Saunders: Rheumatism and its Effects in Children (with cases).

TUESDAY (28th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. R. Hutchison: Clinique. (Medical.) 5.15 P.M. Dr. L. Smith: Some Clinical Aspects of Nephritis.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. C. Williams: Finsen, Ultra-violet, and other Methods of Photo-therapy (with lantern slides).

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Dr. J. Taylor: Paralysis in Children.

WEDNESDAY (29th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. J. Cantlie: Clinique. (Surgical.) 5.15 P.M. Dr. L. Guthrie: The Treatment of Hemiplegia and Ataxia.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Beddard: Practical Medicine.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Schorstein: Mitral Stenosis.

UNIVERSITY COLLEGE, LONDON (Gower-street, W.C.).—Clinical Lecture:—Dr. D. Buxton: The Effects of Certain Constitutional and Blood Conditions on the Induction and Course of Anæsthesia.

THURSDAY (30th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Mr. F. C. Wallis: Intestinal Neoplasms.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Keetley: Hernia. (Lecture II.)

HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Lecture:—Mr. Collier: Appendicitis in Children.

SAMARITAN FREE HOSPITAL FOR WOMEN (Marylebone-road, N.W.).—3 P.M. Lecture:—Mr. Doran: Pelvic Inflammation—Puerperal, Gonorrhœal, and Operative.

CHARING CROSS HOSPITAL.—4 P.M. Mr. Gibbs: Demonstration of Surgical Cases. (Post Graduate Course.)

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN (Leicester-square, W.C.).—6 P.M. Dr. M. Dockrell: Fungous Diseases of Hair: I., Hyphogenic Sycosis; II., Tinea. (Chesterfield Lecture.)

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—5 P.M. Lecture:—Dr. F. W. Price: The Early Diagnosis of Pulmonary Tuberculosis. (Post-Graduate Course.)

WESTMINSTER HOSPITAL MEDICAL SCHOOL (University of London) (Caxton-street, Westminster, S.W.).—5 P.M. Lecture:—Dr. B. Abrahams: Applied Physiology. (Lecture VIII.)

FRIDAY (1st).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. E. Clarke: Clinique. (Eye.)

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Dunn: Glaucoma, its Varieties and Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury, W.C.).—3.30 P.M. Clinical Lecture:—Mr. Gunn: Optic Neuritis.

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Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, Nov. 23rd, 1905.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rainfall.	Solar Radia in Vacuo.	Maximum Temp. shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks
Nov. 17	30·03	N.	...	41	39	34	35	37	Overcast
,, 18	30·19	S.E.	...	44	41	35	35	36	Foggy
,, 19	29·79	N.E.	...	47	44	35	34	37	Cloudy
,, 20	29·86	N.E.	...	63	43	35	35	37	Cloudy
,, 21	30·17	S.W.	...	48	42	30	30	31	Foggy
,, 22	30·15	S.W.	...	63	50	31	34	35	Foggy
,, 23	29·62	SSW	0·02	56	53	35	39	50	Raining

During the week marked copies of the following newspapers have been received:—*Leeds and Yorkshire Post, City Press, Surrey Advertiser, Oban Times, Liverpool Daily Post, Lancashire Post, Manchester Chronicle, Bristol Press, Belfast Newsletter, Leicester Mercury, West Hants Observer, Kilmarnock Standard, Glasgow Citizen, Yorkshire Observer, Leicester Advertiser, Portsmouth Independent, Newcastle Chronicle, Wimbledon Borough News, Cardiff Mail, Bury Times, Wolverhampton Counties Express, Manchester Guardian, Glasgow Herald, &c.*

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